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ORIGINAL ARTICLES.

PERIPHERAL NEURITIS.[1]

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I AM of the opinion that many cases of mild neuritis pass unrecognized, being usually looked upon as rheumatism, to the poison of which no doubt, in many cases, the occurrence of the neuritis is due.

Peripheral neuritis may be isolated, confined to one or a few nerves; or it may be multiple, symmetrical in its distribution, affecting the nerves of all the extremities. These peculiarities of distribution harmonize with the pathological changes occurring in each class. In the isolated neuritis, the disease begins in the nerve-sheath, constituting a "perineuritis" at first, the inflammation extending to the nerve-fibers later. In the multiple forms, on the other hand, the nerve-fibers are themselves the seat of the primary change—a "parenchymatous" neuritis, the sheath becoming affected later. These forms of multiple "parenchymatous" neuritis are always due to some virus in the blood, an organic or inorganic chemical compound usually, which may have a special affinity for nerve-tissue, and affects the periphery of the nerves, because these parts, being farthest removed from their nerve-cells from which they derive their energy, are least able to resist it. The occurrence of the poison in the blood accounts for the wide symmetrical distribution of the disease.

On the other hand, isolated neuritis is due to some cause acting locally, and if several nerves are affected their distribution is irregular, not symmetrical. In these cases there is always a constitutional cause at work as well, predisposing to the disease. In proportion as the constitutional condition is marked, the exciting cause produces the disease the more easily, and the number of nerves affected becomes greater and the attack approaches more nearly to a symmetrical one in character.

Alcoholic peripheral neuritis is the form most often met with, but it does not occur nearly so frequently in this country as in Europe, doubtless because with us much less stimulants are consumed by women than is the case in Europe. There the women are much given to regular indulgence in the stronger spirits, usually secretly, and such drinking appears to be more productive of neuritis than indulgence in occasional "bouts" of drunkenness. In men, delirium tremens is much more common, while it is rare in women. It is difficult to explain this difference; it is attributed to the fact that men drink beer rather than spirits. With us, however, spirit-drinking is more common and delirium tremens results oftener than neuritis. The cases of neuritis I have met, in which the disease was well marked, have all been among males. The following case is a well-marked example:

CASE I.—Wm. G., aged seventy-three, clock-maker. He has always been healthy. He came from Scotland when a young man. He says he has taken one or two glasses of brandy or whisky daily since he was ten years old, but never drank to excess. For the last twelve years he has lived alone, doing his own cooking, and has taken two or three cups of tea or coffee with each meal.

In June, 1893, while walking on the street, he noticed his legs became weak and his calves and feet numb—although he was only a short distance from home, he found it difficult to get there. In a day or two he noticed a similar condition in his hands and forearms. In five days he was unable to walk. He was admitted to the Toronto General Hospital, under my care, on July 6, 1893. His condition was as follows: Complete paralysis of the muscles of the legs and feet, the muscles of the thighs retained some power. There was foot-drop—the foot extended, and the toes flexed. Sensation to touch was much lessened, but great sensitiveness to painful impressions of any kind, especially on deep pressure. There was some "pins-and-needles" and burning feeling in the feet and legs, but not excessive, although sufficient to interfere somewhat with sleep. The skin was dry and harsh, the muscles flabby and tender. Knee-jerk was lost. The hands, forearms and arms were similarly affected, but to a less degree. He could use his hands slightly, but not sufficiently even to feed himself. He was rather dull and apathetic, but healthy-looking. There was gas in the stomach and bowels. The sphincters of both bladder and anus were weak. Urine was passed every two or three hours; this may have been due to enlarged pros-

[1] Read at the meeting of the Huron Medical Association, held at Clinton April 15, 1896.

tate, but the sphincter ani was undoubtedly considerably affected, and required many months to recover. The heart was enlarged and the arteries were sclerosed. The urine was pale and of low specific gravity, so that doubtless there was more fibrosis of the kidneys than would be accounted for by senile change. There was no reaction in either nerves or muscles to the galvanic or Faradic currents. Marked atrophy of all the muscles of the extremities followed.

On September 27th, nearly three months later, the following note was made: "Is gaining some power in both hands and feet; is able to flex toes slightly, but the foot is still markedly 'dropped.' There is slight response to Faradic current in the forearms." In January, 1894, he was able to sit up, and use his hands well, but they were weak. There was no pain, sensation was good in the hands, and fair in the feet. The toes were still flexed, and pressure to extend them caused pain, especially in the calf. There was complete control over the sphincter ani, but the urine was still troublesome, although control of it was improved.

He left the hospital the following spring considerably improved, but still unable to walk. He could stand with support, but the extension of the toes gave him pain in the feet and calves.

In this case the "pins-and-needles" sensation was not very marked for so severe a case, and there was not so much loss of mental power as is usual in alcoholic multiple neuritis; there was some dulness and apathy, but apparently no more loss of memory than age would account for. Otherwise the symptoms were very marked and typical. The weakness of the sphincter ani indicates that the neuritis extended into the lower part of the spinal cord. As he lived alone, confirmation of his statement of the quantity of spirit he took daily could not be obtained. He always told the same story, however, and seemed quite clear-headed. If his story is correct, it is difficult to see how the amount of alcohol taken could cause such extensive disease of the nervous system. Many men drink much more and just as regularly without disturbance of the peripheral nerves. The same is true, however, of diseases of other organs, of cirrhosis of the liver, for example. There must be some predisposing condition or some additional poison to enable the alcohol to cause such changes.

In the case of a man who entered the Toronto General Hospital seven years ago for alcoholic peripheral neuritis, the history differed materially from the foregoing case:

CASE II.—He was about thirty-five years of age; drank freely, but irregularly; was exposed to changes of weather. He had been drinking heavily and slept out all night. It was early autumn, and the nights were cool, but without frost. He found his legs weak next day, with tingling in them, and he was soon unable to walk. The hands were slightly affected. When brought to the hospital he could neither stand nor walk, but could move the feet and toes while sitting or lying. On walking with support, the walk was ataxic. There was no atrophy. His mind was not materially affected, not more so than is usual in alcoholic cases. He made a complete recovery within three months.

In the first of these cases the symptoms are typical of peripheral multiple neuritis; the numbness and "pins-and-needles" sensations, the burning pain, the tenderness to deep pressure, the weakness accounting to complete paralysis in the most remote parts, the atrophy, the loss of superficial and deep reflexes, the loss of electrical reaction, together form a symptom-group that can not be misinterpreted. The absence of a history of excessive indulgence in alcohol, and of material mental disturbance, might be considered as ground for questioning it as one of alcoholic neuritis. Arsenic is the only other cause to which to attribute such an extreme attack. The mental apathy and the diminished pain discriminate this case from arsenical cases, as will be seen in the following examples of arsenical peripheral neuritis:

CASE III.—A man somewhat over sixty years old had a rather deeply seated tumor below the left parotid region, which a so-called cancer-doctor pronounced a cancer, and applied a plaster. The plaster was reapplied several times at intervals of two or three days, followed by poultices. By this time numbness, with painful "pins-and-needles" sensations, appeared in the fingers, soon followed by similar signs in the feet. Weakness followed, and in a few days he was unable to walk or help himself. The numbness, pain, and tenderness also grew much worse. This was the history he gave when received into the hospital about two weeks after the appearance of the symptoms. His condition then was one of utter helplessness. The muscles of all the extremities were much atrophied, the atrophy being more marked in the feet and legs than in the thighs; and in the hands and forearms than in the arms. Ordinary sensation was lost in the feet and hands, and greatly blunted in the proximal parts of all the limbs, but there was great sensitiveness to painful impressions of all kinds. He was not able to bear even the weight of the blankets on the feet. There was a constant burning sensation in the hands and feet, especially at night, so that opiates were necessary to secure sleep. The skin was glossy, and desquamated rather freely, these changes being most marked in the peripheral parts. There was great sensitiveness in the muscles to deep pressure. The mental condition, in contrast to the alcoholic cases, was clear and active, as in health.

There was very little improvement for three

months. After he was able to stand, the feet were so tender that he could not walk, and the hands so tender that holding a cup to drink was painful. The foot-drop was not nearly so marked as in Case I. He left the hospital able to walk and to attend to his dress and other wants, although with much pain and difficulty. He returned some months later to have the tumor treated, considerably improved, but still far from well. The ultimate result I am unable to give, as he has been lost sight of.

CASE IV.—A young man, aged twenty-two, blacksmith, entered the Toronto General Hospital September 29, 1894, under the care of Dr. J. L. Davison, who kindly permitted me to see the case. At five o'clock on the morning of September 8th, three weeks before admission, he ate some pie in the pantry at his boarding-house. Half an hour later he became nauseated, and on inquiry found that the pie had contained a large amount of "Rough on Rats," a mixture consisting of about fifty-per-cent. arsenious acid, which had been placed in the pantry to poison rats. An hour later he began vomiting, without straining. There was no pain but considerable depression with free perspiration. He worked until eleven o'clock. Then he sought advice, and was given emetics. He had no diarrhea. There was marked metallic taste in the mouth, no appetite. He felt fairly well next morning, and went out to sit in the sun. He soon became faint and perspired profusely. The breathing was slow. He lay down, sucked some ice, and soon revived.

At the end of the first week a tingling sensation began in the hands and feet; a few days later, trembling at the knees, with much weakness. He found it difficult to hold a cane. Hands and feet became very tender, and weakness increased. He lost flesh rapidly, especially in the extremities. There was much burning pain, most marked in the feet, and there were darting pains down the legs.

He was able to be about until September 26th, when he suddenly collapsed in the afternoon, and was unable to stand. He partially recovered in two days, and was able to stand again, but the power disappeared the next day, and he was unable to use his limbs or stand for eight months.

On admission to the hospital his extremities were much wasted. There was very little power in the arms, and still less in the legs. The skin was harsh and dry and desquamating. There was much numbness in both hands and feet. Ordinary sensation was almost lost, but there was great sensitiveness to deep pressure. Heat and cold were felt as painful impressions. All reflexes were lost. His mental condition was clear and active. Pain disturbed his nights.

The wasting, tenderness, and paralysis increased during the next few weeks, and two months later paralysis below the knees was absolute, and almost so below the elbows. The thigh-muscles were much wasted, but retained a little power. But pain was much less and only slight "pins-and-needles" sensations remained. His appetite and digestion were better. Reflexes of all kinds, including electrical, were, of course, absent.

Six months after poisoning improvement began, and has continued steadily since, so that now, eighteen months after taking the arsenic, he may be considered quite recovered. There is still slight numbness in fingers and toes, and the knee-jerk is absent. The muscles of the anterior tibial region of the right leg are still weak, and have not regained their full size. They react only to a strong current (Faradic). In walking the foot is easily turned under him, and he cannot raise the toes freely. All the other muscles have completely recovered.

This is a very remarkable case of arsenical neuritis, and a no less remarkable case of recovery from arsenical poisoning. To the dilution of the arsenic with the pie he no doubt owes his escape from a gastritis that would have proved fatal.

In both of these cases the history is typical of arsenical neuritis. In recovery also their course was regular—the power of motion returned before the electrical reaction, and the electrical reaction before the nutrition. It is interesting to observe power of motion gradually being restored long before the muscles show increase in size.

These cases also illustrate the remarkable recuperative powers of nerve-tissue. There had been extensive degeneration of fibers, requiring months to become complete, followed by months of apparent quiescence, and then came the signs of gradual regeneration, requiring many months to become complete.

To these cases I shall add one of mild neuritis, probably due to arsenic taken in medicinal doses. It was a case of pernicious anemia I published in the MEDICAL NEWS, October 11, 1890:

CASE V.—Dr. P. was extremely ill with pernicious anemia. He had been vomiting incessantly when first seen. As soon as the stomach would tolerate it he was given liquor arsenicalis, 1 minim every three hours, and this was increased gradually until he took 45 minims per day. In two months he was able to return home. He was directed to intermit the medicine for a few days from time to time, but in his anxiety to make a complete recovery, he took it continuously. In the third month of taking the medicine numbness and tingling of the hands and then of the feet began. After two or three weeks sudden advent of pain and a purpuric rash occurred. When seen about two weeks later, the anesthesia and tenderness were sufficiently marked to make the hands awkward and walking irksome. It took about three months for him to recover.

The recurrence of neuritis as the result of medicinal use of arsenic is not very rare; nevertheless,

the drug is often given even more freely than in this case without any toxic effects. The sudden onset of general pains and the purpuric rash indicate the existence of some other poison in the blood, possibly of a lithemic or rheumatic nature, and this, or the toxic agent producing the pernicious anemia, may have caused the neuritis. I have a patient under observation at present in whom peripheral neuritis occurs in connection with pernicious anemia.

CASE VI.—A married woman, aged forty, of good family and personal history, has been ailing for over two years, growing gradually more anemic. She lost a daughter last year, after which her condition grew much worse. I saw her first on January 4, 1896. She was then very prostrate, her body fairly nourished, but her limbs were much wasted. She was unable to sit up. On careful repeated examinations the blood was found to contain only between 400,000 and 500,000 red corpuscles per c.mm., and hemoglobin twenty-two (Fleischl). There was some numbness with tingling of the hands and feet. The following week she had great pain and considerable swelling in the feet, the right being most affected. The feet and legs were partially anesthetic, and very tender, especially to deep pressure. It was thought at first that probably phlebitis was the cause of these symptoms, but there was no special tenderness along the course of the veins. The temperature varied from 99 to 102° F. There was some improvement in a few days, and, within a month, the pain and swelling had disappeared, but the numbness and tenderness persisted and have not wholly disappeared yet. Her general condition has greatly improved, the blood-count being now over 3,000,000 corpuscles per c.mm. Sensation is not yet normal, and the legs especially are still much wasted. She is able to walk a little, but the knee-jerk is absent, and there is no response to a strong Faradic current below the knees, and only faint response in the forearms.

The cause of the neuritis was probably the same poison in the blood that caused the destruction of the red corpuscles. I have not met with a case of multiple neuritis occurring in pernicious anemia before this one, nor have I found it referred to in the literature of that disease. It is just possible that in Case V. the neuritis was due to the poison of pernicious anemia and to the arsenic. In isolated peripheral neuritis a local exciting cause is the chief consideration, and is of importance in proportion as the neuritis is circumscribed, even in these cases, however, a predisposing condition probably always exists. Of these predisposing causes it is known that gouty and rheumatic conditions are among the most frequent. Lithemia should be added to these as probably one of the most frequent causes rendering the nerves liable to become inflamed from slight local causes, such as cold and traumatism. Patients seeking advice for "torpid" liver, dyspepsia, constipation, etc., not infrequently complain of numbness and tingling in a hand, a foot, or some other part. They are usually much concerned about these symptoms, fearing that they may be the precursors of paralysis. Lithemia is probably the most frequent predisposing condition leading to the development of inflammation of the nerves, after injury to them, as often occurs in dislocation of the shoulder.

In the treatment of this disease, the first duty, of course, is the removal of the cause—the "etiological treatment." The cause may be easily demonstrated, when, as in most cases, it is alcohol, lead or arsenic; it is more obscure in uric-acid poisoning, and in diabetes. For the neuritis we have no specific remedy. Anodynes may be required to relieve the pain. Rest and protection of the parts from injury are of importance.

Strychnin is regarded by some as a specific, and some satisfactory results are reported from its use, especially by subcutaneous injection gr. $\frac{1}{30}$ to $\frac{1}{30}$, twice daily. It favors the return of normal nutrition by stimulating the irritability of the affected muscles. Probably it also stimulates the multipolar cells of the spinal cord, so that they may impart greater energy to their fibers, and thus enable them to resist further destruction and hasten repair in those already degenerated. Electricity may, to some extent, effect the same purpose, but it is doubtful if it has any further effect than to stimulate contractions of muscles, if they react to the stimulus.

As soon as tenderness has abated massage and baths will prove useful in hastening the removal of excrementitious matter, and stimulating the nutrition by increasing the flow of blood through the affected parts.

In the later stages the rousing of the patient's latent energies and encouraging him to make voluntary use of the muscles, as far as possible, will do more to accomplish the objects in view than any other plan of treatment.

With few exceptions the prognosis is good; recovery will be long delayed in severe cases, and in a few acute cases a fatal termination occurs within a few days or weeks. In the first case I have related, full recovery did not probably take place on account of age.

Bad cases grow worse for weeks or months and then remain stationary for a time. Complete recovery requires several months.

VAGINAL SECTION FOR THE CURE OF RETROVERSION OF THE UTERUS.[1]

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FROM the time Schuecking attempted the cure of retroversion by vaginal ligature, much ingenuity has been displayed by gynecologists in Germany in devising methods of treating retroflexion and retroversion by vaginal section.

A number of successful and unsuccessful attempts have been made to shorten the sacro-uterine ligaments by ligatures passed through them[2] by the same method; including, however, the denuded cervix in the sutures, so as to unite it to the denuded posterior vaginal wall;[3] by the obliteration of the cul-de-sac of Douglas;[4] by the same method, but passing the sutures through the cervix;[5] by suture of the ligaments themselves through an incision into the cul-de-sac;[6] and finally by suture of the ligaments through an opening made between the uterus and bladder.[7]

The attempts, however, have not proved uniformly satisfactory, since it is difficult to reach the ligaments by way of the vagina, and there is too much subsequent traction on the parts operated upon.

Mackenrodt made a median-line incision in the anterior vaginal fornix, separated the bladder from the uterus and vagina, and sutured the anterior uterine wall to the vaginal wall behind the bladder, which was displaced forward. Some vesical symptoms and recurrences of the retroversion led him to go one step farther, *viz.*, open the peritoneal cavity between the uterus and bladder, and suture the uterus direct to the vaginal walls, thus obtaining a connective-tissue union between the uterus and vagina, instead of partly peritoneal adhesions as in his first method. After operating over a hundred times, he discovered that the connective-tissue union of the anterior vaginal wall with the anterior uterine wall interfered with the development of the latter during pregnancy, to the extent of interrupting pregnancy in some cases, and of seriously complicating labor in others. He therefore declared the procedure unfitted for patients liable to become pregnant. Dührssen makes a transverse incision in front of the cervix, separates the bladder from the uterus, incises the peritoneum in a sagittal direction, and draws its edges and the fundus uteri to the vaginal edges by one or two sutures, but closes the peritoneal incision, before tightening and tying them. The fundus thus adheres to the bladder instead of to the vagina.[1]

Mackenrodt's bad after-results led some operators to return to the first method of peritoneal attachment without opening the peritoneal cavity, and determined him to stitch the uterus to the bladder only in his subsequent cases. Simultaneously, several operators began to use the round ligament as the means of support.

Wertheim[9] of Professor Schauta's clinic in four cases attached the round ligaments, one or two centimeters from the uterine end, to the vaginal edges; and also proposed attaching them to the peritoneal edges where the membrane is reflected from the bladder, but did not have much faith in the latter as a permanent cure. In one case he made a loop in the round ligament by passing a silk thread through it near the uterus, and then again through it as far away from the uterus as possible and tying it.

Bode[8] of Dresden had already performed the same operation three times, and recommends it.

Guenther[4] of Dessau put a silk suture in each round ligament near the uterus and pierced the abdominal wall over each tuberbuculum ossis pubis with the needles, and thus brought out the threads, pulled the uterus forward by them, and tied them on the skin. He had performed the operation once.

F. Kiefer[5] of Martin's Clinic in Berlin stitched together a fold of the ligament through the vaginal incision very much as Mann does through the abdominal incision. He also proposed suturing the round ligaments near their uterine ends to the abdominal walls, but his method differs from Guenther's, in that he penetrates the abdominal walls from without, guarding the point of the needle by his finger, which has been introduced through the vaginal wound, and pulls the thread down into the vagina, attaches it to the scarified round ligament, and then draws the uterus to the abdominal walls by means of it.

While performing the operations, gynecologists discovered that through the same incision adhesions could be separated, diseased ovaries and tubes resected or removed, subserous uterine

[1] Read before the Illinois State Medical Society, May 20, 1896.
[2] Byford, "Diseases of Woman," 1888.
[3] Herrick, *American Journal of Obst.*, March, 1891.
[4] Stratz, *Zeitschrift f. Geburt und Gyn.*, 1891, p. 337.
[5] Sänger, *Centralblatt f. Gyn.*, 1891, p. 889.
[6] Gottschalk, *Centralblatt f. Gyn.*, 1896, p. 417.
[7] Wertheim, *Centralblatt f. Gyn.*, 1896, p. 465.

[1] *Zeitschrift f. Geburt und Gyn.*, 1896, p. 152.
[2] *Centralblatt f. Gyn.*, March 7, 1896.
[3] *Centralblatt f. Gyn.*, March 28, 1896.
[4] *Centralblatt f. Gyn.*, February 22, 1896.
[5] *Centralblatt f. Gyn.*, April 11, 1896.

fibroids enucleated, and small omental tumors, or portions of the omentum itself, be extirpated.

Working along the same lines and at the same time with these followers of Dührssen and Mackenrodt, I had evolved a method, before the reports of the above-mentioned work were known or accessible to me, which I think places the uterus more securely in its proper position than any of them, and at the same time does not interfere with its normal mobility, nor with that of the bladder. It consists in producing limited peritoneal adhesion between the fundus uteri and the bladder, and in shortening the round ligament through the vaginal incision. The bladder-attachment acts as a safeguard, in that it insures a return of the fundus forward, while the contracting bladder is emptying itself.

The technic of the method is about as follows: The vulva and vagina are thoroughly scrubbed with soft soap, then with strong alcohol, and then with a 1–2000 solution of bichlorid of mercury. The uterus is dilated and curetted, and disinfected with mild or strong solutions according to the requirements of the case, or the notions of the operator. This preparation is necessary to prevent the infection of the connective tissue and buried ligatures.

A transverse incision, a trifle over an inch long, is then made in the vaginal wall just in front of the cervix, and the bladder separated from the uterus by the finger as far up as the peritoneal reflection. Then a longitudinal vaginal incision, about two inches long, is made in the median line from the neck of the bladder to the middle of the transverse incision. The bladder is separated from the vagina for a short distance on either side of the incision to give room for manipulation. The peritoneum is then torn across between the uterus and bladder, an intra-peritoneal pelvic examination is made, adhesions are separated, and such parts are treated or removed as may require it. The bladder-peritoneum is then seized by forceps and drawn down by successive grips, until that which lies behind the tubes can be seen. Two chromicized catgut-threads are introduced about one inch apart through this portion of the peritoneum and subperitoneal tissue as high as possible. Then the anterior surface of the uterus is grasped with tenaculum-forceps, and the fundus pulled into the vaginal wound and attached to the bladder by means of the above-mentioned catgut-threads. The finger is next hooked over the left round ligament, which lies beside the vaginal wound, a loop of the ligament drawn into sight, grasped by forceps, and pulled down until the inguinal end is taut. A catgut-suture is put through it as far from the uterine end as possible, and is made to attach it to the uterus just above the normal uterine insertion, which is easily exposed to view by the vaginal retractors. The same is done to the right ligament. The entire vaginal wound is closed with transverse sutures that reunite the bladder to the vagina, and also draw the ends of the transverse incision together, leaving one row of sutures in the median line. This lengthens somewhat the anterior vaginal wall and draws the connective tissue together in front of the cervix. A few inches of a narrow strip of gauze is placed in the connective tissue in front of the cervix to be removed in twenty-four hours, by pulling on the end which projects between the sutures into the vagina.

I have operated upon ten cases in this way, besides one case in which I merely sutured the fundus over the bladder, and in each one the uterus has remained in a normal, mobile position, without the aid of a pessary at any time. The comfort is greater, and the complaint much less than after Alexander's operation, and the patient is not conscious of a wound or sore place. In addition to these advantages we obtain, while operating, a definite knowledge of the condition of the pelvic organs and the possibility of correcting them.

The uterus has no abnormal attachments except the two points of peritoneal adhesion to the bladder, and there is nothing to fear from subsequent pregnancy.

THE DOSAGE OF NITROGLYCERIN.

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THE dosage of nitroglycerin does not seem to be very clearly defined in medical literature. That poisonous effects may sometimes be obtained from small doses all observers recognize. Dr. H. C. Wood cites a case in which a single drop of a one-per-cent. alcoholic solution produced insensibility, and another case in which two drops caused complete loss of consciousness and of the pulse at the wrist. That the continued use of the drug creates a tolerance is mentioned by Dr. H. A. Hare, who says: "It is noteworthy that patients rapidly become immune to the drug, and Reading has recorded a case in which, after a year of treatment, one dram of a ten-per-cent. solution was taken daily, with good effect" (*i. e.*, six grains in the twenty-four hours). The largest recorded dose that I can find is one reported by Dr. Whittaker, in the "Twentieth-Century Practise," of 1½

grains every three hours, or 8½ grains in twenty-four hours.

Nowhere in the literature of the drug do I find even a suggestion that a contracted state of the arteries produces a condition which tolerates larger doses of the drug than when the arterial walls are in their normal state. Arguing from a slightly different standpoint, the proposition may be formulated that the poisonous symptoms of nitroglycerin do not begin to manifest themselves until the drug has relaxed the arterial walls beyond their normal tonicity. In confirmation of this theory, I submit, through the courtesy of Dr. Beverley Robinson, the following three sets of experiments, which were carried out, last winter, at St. Luke's Hospital. For the smaller doses, tablets of nitroglycerin were used, and for the larger doses a ten-per-cent. alcoholic solution. This solution was subjected to a quantitative analysis by a competent chemist, and found to be of full strength.

To six patients with normal arteries and hearts nitroglycerin was administered in the dose of $\frac{1}{100}$ of a grain, every hour. After three or four doses, in several of the cases, and before the expiration of twenty-four hours in all of the cases, headache was produced. In other words, a total dosage of about $\frac{1}{8}$ of a grain in the twenty-four hours caused poisonous symptoms.

The second experiment can scarcely be called such. There was a patient in the male ward with well-marked atheromatous arteries, but no tension. He had never taken any nitroglycerin in his life, to his or my knowledge. By mistake, he was given, at a single dose, 2½ grains of glonoïn. This large dosage was followed by absolutely no discomfort whatsoever. In this case, apparently, the rigid condition of the arterial walls did not permit the nitroglycerin to produce its relaxing effect, and so no poisonous symptoms occurred.

The third set of experiments was tried on cases of marked arterial tension, the walls being free from atheroma. The first case was a man, fifty-three years of age, who had been troubled for ten years with severe attacks of asthma. The physical examination revealed loud, sibilant, and sonorous sounds, subcrepitant and moist râles over both lungs, and marked tension in the radials. The urine contained a trace of albumin, and, at times, a few hyaline casts. During twenty-five days the nitroglycerin was gradually increased, so that finally he was getting seventy-six grains in the twenty-four hours. All the signs had disappeared from the chest, the breathing was easy, there was no tension in the radials. At no time during the administration of the glonoïn did he suffer from headache or any symptom that could be attributed to the action of the drug. The medicine was then stopped, to observe what the effect would be. Within forty-eight hours he had a return of his asthma and radial tension. Another case of arterial tension was that of a man, twenty-one years of age, who had had symptoms of nephritis for ten weeks previous to entering the hospital. His urine contained ten per cent. of albumin and numerous granular casts. His radials were markedly tense, but free from atheroma. During four weeks the nitroglycerin was steadily increased, so that he finally took 125 grains (over two drams!) in the twenty-four hours. The tension had entirely disappeared, and no unpleasant symptoms had presented themselves. The final dose was eight grains every hour while awake. Upon increasing the dose to nine grains, a slight headache was produced, and the drug was pushed no farther. It should be stated that in both of these cases of high arterial tension the relaxation of the radials was obtained some little time before the maximum dosage was reached. The drug was increased from that point simply to observe the degree of tolerance.

The above results point to the following conclusions in regard to the dosage of nitroglycerin:

1. It is only when dealing with arteries in which there is no more than the normal tonicity of the walls that the drug is liable to produce disagreeable effects. Under this condition it should be administered with caution and in small doses.

2. In cases of arterial tension, the drug can be used more freely than has been customary among practitioners, the dose being proportioned to the degree of tension.

3. In cases of arterial tension, tolerance to the drug is rapidly acquired, and, by a slight increase day by day, very large doses can soon be taken with safety, the constant guide being the degree of tension in the arterial wall.

CLINICAL MEMORANDUM.

UNILATERAL PARALYSIS OF THE SPINAL ACCESSORY NERVE CAUSED BY EXPOSURE TO COLD, ASSOCIATED WITH MOTOR PARALYSIS OF THE VAGUS.

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of Toledo, Ohio.

Paralysis of the spinal accessory is evidenced by paresis of the sterno-mastoid and trapezius, both of which are also freely supplied with motor nerves from the cervical plexus. These muscles are weakened in power,

only the occipito-acromial fibers of the trapezius being paralyzed, according to Osler.[1] The scapula droops and rotates downward and outward, and power to elevate the arm above the shoulder is more or less impaired. Thus it is observed that, in so far as the cervical muscles are concerned, the evidences of spinal accessory paralysis are not pronounced and may be readily overlooked.

In the sub-occipital space, where the nerve emerges from the sterno-mastoid, it is quite vulnerable to cold. Compared with the facial in its temporo-maxillary portion, one would expect it to be equally susceptible to the influences of exposure. The association of progressive and complete paralysis of the spinal accessory and pneumogastric is not rare, but such conditions are nearly always central in origin, usually bilateral and permanent.

Having observed several cases of obstinate unilateral paralysis of the laryngeal muscles that could consistently be attributed to exposure to cold, the suggestion of analogy to facial paralysis has often presented itself. We must, of course, exclude all of those cases of myopathic origin in which inflammatory infiltration causes the impairment of function. Again, as McBride states, the rheumatic condition is very often a predisposing factor in transient paralysis of the intrinsic laryngeal muscles.

We would not expect to find a unilateral paralysis from exposure of the pneumogastric or its motor branches, but rather from traumatism, pressure, or chilling of the peripheral portion of the spinal accessory and consequent functional disorder of all its branches.

The following case, in which the group of symptoms pointed clearly to the condition implied in the title, recently came under my observation:

The gentleman, a druggist, of about forty years of age, returned from a two weeks' lake-trip on August 30, 1895. One week previous, while stopping at Marquette, and after several days' exposure to strong winds yachting on Lake Superior, he had severe neuralgia in the right temporal region. The following morning he awakened with strange and annoying sensations in his throat, and when he attempted to move he found that his right arm was weak, and the head seemed very heavy and inclined to fall over to the left. With assistance from his wife he dressed and went to breakfast. He soon discovered that he could swallow only with difficulty. The bolus of food seemed to stay in the lower pharynx for some time and passed into the gullet slowly. Fluids were in part returned into the mouth. At times he choked quite badly. He observed also that it was difficult for him to raise the right hand toward the mouth.

During the day there was some cough, but it was not severe at first. The patient states that he did not feel as though he had contracted a cold, and rightly, I think, attributed the laryngitis to the irritation of food and drink. His general condition was fairly good, and he continued on his lake-trip, making occasional stops. Several times he had severe attacks of choking, and gradually a mild bronchitis developed. When asleep he snored very badly. By the time he reached home he was anxious and depressed. It should be added that his habits are excellent, and there is no history indicating a rheumatic diathesis, nor malaria, nor constitutional disease.

I examined him August 30th, and found the following condition: Temperature normal, pulse about 95, stomach and bowels inactive. The urine was normal. Reflexes, including pupillary, active. Sensation, both of skin and mucous membrane, was natural. The action of facial muscles and lips was good, and the tongue was protruded vigorously, with a slight inclination to the right. The uvula was drawn over to the left side, and a contraction-dimple was observed on the left, while the right side was drawn smooth. The action of the right pharyngeal muscles was decidedly impaired. The right vocal cord was fixed in the cadaveric position, and the left made compensatory excursion sufficient to produce a fair voice. The mucous membrane over the right arytenoid was infiltrated and looked excoriated or blistered, doubtless from irritating foods. He was coughing quite badly, and on such occasions there was decided inspiratory stridor. Dr. C. L. van Pelt called attention to the fact that the trapezius and sterno-mastoid were paretic. Reaction-tests were not made, but trials of range of motion and strength located the weakness in these muscles. The arm and forearm seemed to have normal strength. The head was supported most of the time on the right hand, with the elbow rested. The mind was clear and, as stated, the voice was weak and tremulous, conversation tiring him quickly. The impaired action of the tongue was doubtless due to lack of normal support at the base. During his confinement to the house the pulse varied. At times it was as low as 50, and on excitement would run up to 95, thus suggesting that the cardiac function of the vagus was disturbed.

The treatment consisted of quiet rest, mild cathartics, bromids, and codein to quiet the spasmodic cough, and the diet was restricted to warm, bland fluids. A mild, detergent gargle was prescribed.

On the second day following, I was summoned in great haste. He had had a desperate attack of choking while taking a little plain soup. For five minutes or more, he struggled violently to catch his breath, which left him much exhausted and frightened. The bromids were increased, and nitrite of amyl was supplied to give him renewed confidence. This attack marked the critical period of his sickness, and from that day he gradually improved. For about two weeks he would throw his head over to the left with each attempt to swallow, thus rendering the palato-glossal and right pharyngeal muscles more tense. The base of the tongue was probably called into action to crowd the bolus into the gullet. He was confined in all about two weeks after he reached home, but the weakness of the throat and shoulder persisted for about a month from the date of his return home. A recent examination shows that all of the paretic symptoms have disappeared. As stated, the right vocal cord seemed to be completely paralized in so far as phonation under examination with the laryngoscope could determine, but yet there was probably some motion in ordinary speaking. This is possibly suggestive of independent but limited motor function of the pneumogastric.

[1] Osler, "Practise," p. 809.

SPECIAL ARTICLE.

LEPROSY IN BRAZIL.

BY ALBERT S. ASHMEAD, M.D.,
OF NEW YORK.

DR. JOSÉ LORENZO DE MAGALHAES of Brazil, who has published an interesting work on leprosy in that country, says that this disease did not exist among the natives, and that it does not exist to-day among those who are not yet mixed with the rest of civilized mankind.

Dr. Juliano Moreira, physician to the Hospital Santa Isabel, Bahia, Brazil, informs me that the natives, before the Portuguese colonization, the Tupis, Krars, the Goytacazes, the Guerens, Gucks, Parecos, the Guaycurus, Lengoas, and Arrawacks, were certainly not leprous, and that the Brazilian Indians of to-day are not afflicted with this disease.

Dr. Enrique Robelin, speaking of leprosy in British Guiana, says: "It seems that leprosy was imported by the negro slaves, among whom a leprous epidemic broke out, and as special care was taken to isolate them, the evil was limited and circumscribed among themselves. In 1831, there were 431 lepers, who were all sent to the leprosery situated on the Pomeroon River. In that place had resided since time immemorial various Indian tribes, among others were the Caraibs, the Arrawacks, and the Warrows. Disgusted by this neighborhood, the Indian tribes left the territory, except the tribe of the Warrows. What happened to both parties? The tribe of the Warrows, which remained in the vicinity of the lepers, with whom they established relations, *was infected by leprosy*. The other tribes, whom an instinct of self-preservation had induced to leave the country, and to take refuge in other districts, remained intact (Dr. Suzor, 1886)."

Speaking of the development of leprosy following human currents, Dr. Robelin says: "What means this propagation every time that new colonists came into close contact with the inhabitants? Is it heredity or spontaneity? Heredity is unable to explain this great development, spontaneity still less. These reasons are not solid, they fly in the face of good logic, and are in contradiction with the facts which we have exposed above. Hereditary diseases do not run so rapidly through the world, or through the countries."

The same contrast is offered by Brazil. Leprosy is very common in the provinces of Maranhao, Para, Pernambuco, Bahia, Rio Janeiro, and Parana; it exists also in the southern provinces of Las Minas and San Paulo. The Indians of Brazil do not suffer from it.

Leprosy, contrary to the assertion of E. R. Coni, is not called quigila in Brazil, but morfea.

Quigila, although it exists in Brazil, is far from being as frequent as morfea or lepra, and is therefore less studied.

LEPRA ANESTHETICA.	QUIGILA.
1. Vesicles presenting the character of the herpes zona or of the pemphigus, which burst spontaneously, issuing first a clear and transparent liquid, and leaving in their place ulcers which exhale a fetid and sanious pus. It is one of the characteristic symptoms of the disease.	1. Plaques of psoriasis, which at times present the aspect of ichthyosis.
2. The skin presents anesthesia almost from the beginning of the disease, and this is one of its culminant symptoms.	2. The skin presents anesthesia in no period of the disease.
3. Affection generally considered as local, but with tendency to generalization.	3. General affection.
4. It is not contagious, according to modern authors.	4. Contagious, affecting sometimes all the members of a family.
5. It appears between the ages of thirty and fifty.	5. It appears before thirty, and begins its work mostly at twenty.
6. Its average course is of eighteen years, while there are examples of twenty and thirty years' duration.	6. The course of the disease is rarely five or six years.
7. The skin of the face is normal.	7. The skin of the face, forehead, and eyelids is swollen and hardened.
8. The mucous membranes are always found intact.	8. The mucous membranes are frequently attacked.
9. The bones are eliminated entirely or carious.	9. The diaphysis of the bones of extremities disappears, molecule after molecule, by interstitial reabsorption.
10. The mouth is asymmetrical, turned to one side by the paralysis of the buccinator.	10. Symmetrical mouth.
11. Disturbance or abolition of vision.	11. Normal vision.

Ainhum was first described by Drs. da Silva and Wucherer, physicians of the province of Bahia, Brazil.

In the course of 1876, we observed a case of this affection in a Moreno, born in the island of Bourbon. He belonged to the clinic of Dr. Juan Antonio Argerich.

In this patient, the fourth toe of the right foot was amputated. We could observe the symptom-complex of this disease, such as the furrow at the root of the toe, the deformity, intense pains, and incapacity of walking.

We may therefore offer the following table of symptoms which shows strikingly the notable difference existing between the two diseases:

AINHUM.	LEPRA ANESTHETICA.
1. Affects only negroes and Hindoos.	1. Affects individuals of all races.
2. Affects only the last toes.	2. Affects all toes and fingers.
3. Hyperesthesia.	3. Anesthesia.
4. No muscular atrophy.	4. Muscular atrophy.
5. No initial vesicles, no ulcerations nor retraction of tendons.	5. Begins quite regularly with vesicles, followed by ulcerations, more or less deep, and retraction of tendons.
6. In the case observed by us, the bones were found whole, and a little more vasculated.	6. The bones are carious and fall off spontaneously.
7. There is always a furrow at the base of the fingers with thickening of the skin.	7. Never any furrow, no thickening of the skin.
8. The patient cannot walk without pain.	8. He walks without pain.
9. Vision remains.	9. It is disturbed or destroyed.
10. The finger is never in any period sphacelated.	10. Finger or fingers often so.
11. The affection is localized only in the fingers, and the prognosis is not grave.	11. The affection penetrates to the centers and is of great gravity.
12. May be cured by the amputation of the finger, and sometimes by the deprivation of the ring.	12. Always incurable.
13. No general phenomena.	13. There are general phenomena.
14. Nutrition generally intact.	14. Deep perturbances in the nutrition of the whole organism.
15. No complications.	15. Generally complicated with renal lesions which offer all the symptoms of albuminoid nephritis.

From Dr. W. Havelburg, physician to the Hospital Don Lazaros, Rio Janeiro, and director of the bacteriological laboratory, I have received a history of his hospital, which treats of the expansion of leprosy.

In the seventeenth century, or perhaps the last years of the sixteenth century, lepra appeared in Rio Janeiro, borne on the tide of immigration from Europe and Africa.

The disease propagated itself quickly, attacking all races and classes, but especially the black race.

The harbors of disembarkation for the Africans, like Angra dos Reis, Macahé, and Campos, furnished a large contingent of black lepers, employed in the rural service.

There is in Rio Janeiro an increasingly large number of lepers, most of them poor, but some of them well-to-do, and this number will increase further if the public powers do not take energetical measures to restrict it.

MEDICAL PROGRESS.

Treatment of Chlorosis by Rest.—In a comprehensive article on anemia, published in the *Brit. Med. Jour.* of September 19, 1896, TAYLOR compares the use of iron in chlorosis to that of digitalis in heart-disease, saying that just as in the severer forms of the latter trouble digitalis is useless unless the heart is saved some of its exertion by physical rest, so iron may be of little value in grave cases of chlorosis if the wear and strain of the body is not reduced to a minimum. This is no new point, but it will bear repeating, because of the widespread tendency to insist upon fresh air and exercise for every anemic patient. The value of fresh air is intelligible, and in so far as the chlorosis can be shown to be due to indigestion, and in so far as the exercise may improve this condition, it may be advisable; but in certain conditions it may be shown to be harmful. In late stages of anemia, when the heart is dilated and the patient panting for breath after the least exertion, the attempt to keep up systematic exercise only prolongs the illness. Taylor has seen many cases which had been treated with iron and exercise with only temporary benefit, permanently improved by rest in bed for one, two, or three months, according to the gravity of the case.

A New Method for the Application of Medicines to the Nasal Mucous Membranes.—LIEBREICH (*Therapeutische Monatsschr.*, August, 1896) makes applications to the mucous membrane of the nose in the following manner: A bit of absorbent cotton, corresponding in size to the anterior nares, is saturated with the prescribed fluid. It will hold readily 30 to 40 drops. It is then inserted into the nose so far that it does not protrude, and while the patient breathes with the mouth open, light pressure is made upon the alæ of the nose with thumb and forefinger, the pressure being made from before, backward. This will serve to express the fluid and effectively douche that side of the nose. The simplicity and safety of this method of treatment especially recommend it. The position of the head during the douche is immaterial, and need not be altered, therefore, from its customary one. By experiments upon the cadaver, Liebreich found that 1 c.cm. of fluid introduced into the nasal cavity in the manner described, the head being held in a vertical position, bathed the mucous membrane of the inferior meatus and inferior turbinate and, to a less extent, that of the middle turbinate, depending upon the configuration of the nasal cavities.

THERAPEUTIC NOTES.

Non-Tubercular Chronic Diarrhea of Infants Treated by High Injections.—DAUCHEZ (*La Presse Méd.*, July 25, 1896) advocates the use of large irrigations of warm boric-acid solutions in non-tubercular chronic diarrhea of infancy. By this means the infectious agents, ferments, and microbes, which settle especially in the large intestine, are washed away. If desired, a two-per-cent. solution of hyposulphite of soda, or of nitrate of silver 1–2000, may be introduced high up into the rectum by means of an esophageal or urethral catheter of large caliber.

These injections should be made every day, or at least, every second day, alternating, in the latter instance, with a periodical or methodical treatment by means of purgatives (sulphate of soda, or magnesia, or calomel, associated with betanaphthol or salol). Later (from the sixth to the fifteenth day), opium and subnitrate of bismuth will complete the cure.

The investigations of Gilbert and Dominici have shown that purgatives reduce from fifteen billion to two or three billion the organisms found in the intestines in such cases—coli bacilli, spirilli, amebæ, etc. The stools, owing to the action of these intestinal microörganisms, are very fetid—brown, or green, and fluid—mixed with glairy secretions which adhere to the napkins. There are usually only four or five a day, without blood, or membranous flakes, or rice-grains, as in dysentery, without tenesmus, pain, meteorism, or any gastric trouble.

Dauchez agrees with many others who have recently investigated such cases that the usual cause of infection is impure drinking-water. He quotes from a number of clinical records of patients cured in from two to four days of long-standing chronic diarrhea by irrigation of the colon. In introducing large quantities of fluid the pressure should be slight (one to three ft.) and the fluid should enter the colon slowly, while the patient lies on his back with a pillow under the left hip so that the cecum may be low.

The Treatment of Lupus.—FEIBES reports excellent results from the local treatment of lupus vulgaris with a solution of one part of metallic mercury in two parts of fuming nitric acid. The application may be made by means of a small bit of wood, pointed at one extremity, which is dipped into the solution and plunged into the lupous nodule. Ten or a dozen nodules may be thus treated at one sitting, which is repeated every three or four days. The little wounds are covered with cotton, which is removed with the aid of a borated solution on the following day and replaced by lead-plaster. The resulting cicatrices are very small.—*Semaine Médicale*, 1896, No. 30.

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EFFICACY OF SULPHUR-DISINFECTION.

An English health officer, Dr. Kenwood, wearied of hearing the disinfecting of rooms by sulphurous-acid gas referred to as "inefficient," "unscientific," and "useless," undertook experiments to determine the truth of such assertions. His results and conclusions are published in the Medical News, September 5, 1896, p. 277.

Referring first to statistics of parts of London and its vicinity, he found that in 1895 there were 1330 premises disinfected by sulphur for either diphtheria or scarlet fever. In fifty-five instances (four per cent.) one of these diseases broke out in the same premises within two weeks after disinfection. As several causes other than that of faulty disinfection of the room combine to make up this small percentage, the author looks upon these figures as proving the value of sulphur. Thus, infection may have antedated fumigation, or it may have occurred from improperly disinfected clothing, or from a totally outside source.

But not satisfied with statistics, Dr. Kenwood turned to experiment, and exposed fresh diphtheria-bacilli on swabs and lint in a closed room, in which sulphur was burned just as it would be in official disinfection, *i. e.*, one pound of sulphur to every 1000 cubic feet of air-space. When this amount of sulphur was burned, the air tested four hours later was found to contain 0.88 per cent. of SO_2. Other tests were made with less amounts of sulphur, so that the air contained only 0.5 per cent. and 0.25 per cent. of SO_2 respectively. In the twelve tests made where one-half pound of sulphur or more was burned to each 1000 cubic feet of space, no growth could be obtained from the cultures. In the twelve tests made by using sulphur (liquefied SO_2), only sufficient to give a percentage of 0.25 in the air, one weak diphtheria-culture was obtained growing after three days' interval. In two other instances aerial bacteria were obtained. Control-cultures in every case grew vigorously.

Dr. Kenwood concludes therefore that for the germs against which it is employed sulphur-disinfection is efficient, and possesses over the method of rubbing down or sponging the walls, employed in Germany and France, one notable advantage, in that through carelessness the workman cannot neglect any part of the wall, as may easily be the case where the continental methods are used.

IMPORTANCE AND USES OF HYPNOTISM.

Another universal panacea has been thrust before the attention of the public in a popular journal. We can quite agree with Dr. R. Osgood Mason, when he says, in the *North American Review*, hypnotism has come to stay, but we cannot agree with him in the abounding confidence which enables him to prophesy that its investigation and application will disclose new uses, therapeutic, psychic, and educational, which will place it among the most highly prized agents for good in use among intelligent well-wishers of humanity. That "suggestion" may be made to serve many good purposes, stimulating the weak along the path of moral rectitude, inhibiting lower impulses, now and then subserving the purposes of a therapeutic agency, we do not deny. We believe, however, that the first object of an article, particularly one by a medical man, recommending a new therapeutic or pedagogical agent, should be clearly to distinguish between those cases in which it is ser-

viceable and those in which it is not; and when such an article appears in a popular journal, universal promises should not be extended which may postpone the initiation of individual effort in a moral or intellectual sphere, or may delay recourse to proper medical treatment. The evil of all mind-cures lies in just this, that the unthinking public fails to distinguish the very marked line of separation between the cases in which the influence of the mind may act in a remedial manner, and those cases in which its influence can produce no beneficial change whatever.

It is demanded, from a medical man especially, that attention should be called to the fact that susceptibility to hypnotic influence is itself a stigma of neuroticism, perhaps of hysteria, and that those cases in which hypnotism has been effected have this in common with cases of mind-cures, that they are most frequently observed in hysterical subjects whose symptoms are significant of a disorder of the mind. Far from doing this the author suggests that nearly every one is to a greater or less degree susceptible to hypnotic influence. Nearly every one can be made sleepy by looking at a bright object fixedly, while some one else strokes his brow, pats his hand, makes monotonous passes in front of his eyes, or utters rhythmical sounds. But that nearly every one can be put into such a state, that the cigarette- or drink-habit can be suggested away, or that nocturnal terrors, insomnia, stammering, or immorality can be done away with, has not been proved by a careful study of such hypnotic cases as we possess.

Continued hypnotization may only injure the subject by diminishing his power of self-conscious coördination and direction of effort. He learns to depend upon an extraneous force instead of depending upon himself. The hysteric or moral imbecile frequently shows that his chief deficiency is a susceptibility to every fleeting idea or impulse that may come before the mind. Among others, such ideas or impulses may be suggested to him by the hypnotizer; continued hypnotization makes the victim more susceptible to such influence, and a general susceptibility to the suggestions that come from without takes the place of those that come from a single source. Mental tonic is what such persons need; they need to have suggested to them that they themselves can overcome these difficulties; they need to be taught methods of self-conquest; they need to be made independent of the hypnotizer. Many such cases, like broken reeds, lean upon the personality of the hypnotizer. When that is removed, like broken reeds, they fall to the ground.

PROGRESS IN OPHTHALMOLOGY.

EXTRACTION OF THE CRYSTALLINE LENS IN HIGH DEGREES OF MYOPIA.

THE correction of errors of refraction, by means of glasses, has reached, at the present time, a high degree of excellence, conferring its greatest benefits on humanity when applied to far-sighted, astigmatic, and moderately myopic eyes. The extremely near-sighted eye, largely a product of civilization, presents certain features which render it impossible to afford to the possessor the degree of relief that is desired, by the application of correcting glasses. In myopia of 15 diopters, the farthest point of distinct vision is 2.6 inches; the individual is able to see objects with reasonable distinctness at a slightly greater distance, and usually holds whatever he is reading somewhat further from the eye. With a practical far-point at 4 inches, the degree of convergence necessary for binocular vision is excessive, calling for great exertion on the part of the internal recti muscles. It is also necessary for the individual to bring his head close to the object viewed—conditions that tend to augment myopia. Myopia of the higher degrees is often progressive. The globe elongates and, as it becomes enlarged, carries with it such changes as posterior staphyloma, posterior choroidal atrophy, rarification of retina and choroid at the posterior pole, detachment of the retina, spontaneous subluxation of the lens, degeneration of the vitreous, etc., with consequent partial or total loss of vision. A strong concave glass before an eye causes a reduction in the size of the retinal image and lessens, to some extent, the degree of illumination. The effect produced is as though one were looking through the large end of an opera-glass, and is so unpleasant that the patient prefers to wear a glass that falls short of the full correction.

The extraction of the crystalline lens for the

improvement of vision and the alleviation of the condition in high degrees of myopia was first practised, according to M. Dujardin, by the Abbé Desmonceaux, in France, in 1776, but did not come into general use. In 1887, Tukala removed the crystalline lenses in two cases of high myopia, and presented the patients at a meeting of the Vienna Medical Society in 1889. The vision had been greatly improved and the myopia had not progressed. Soon the discussion of the procedure became widespread. Much was said for and against the operation, but its advocates steadily gained ground, until now the benefits conferred on the patients are becoming fully realized, and the operation has reached a position in ophthalmology which it bids fair to retain.

The operation employed by nearly all ophthalmic surgeons is discission; the greater part of the crystalline lens is broken up by means of the discission-needle. In from two to five days, according to the rapidity with which the lens-débris becomes opaque and swollen, the lens-substance is removed through a small, linear, corneal incision, without iridectomy. There are exceptions to this general rule. Although absorption of lens-débris does not go on so rapidly in old as in young individuals, the progress is quite satisfactory, because of the fact that sclerosis of the lens is less marked in myopic eyes. Von Hippel states that sclerosis does not occur in the lens of myopic eyes, but this statement must be somewhat modified.

But few accidents occur when the operation by discission and subsequent evacuation of the lens-débris by linear extraction is resorted to. Pflüge, who has operated in more than eighty cases, believes that the operation is, in a measure, protective, and even curative, as he has observed one recovery. The evidence obtained goes to prove that the accidents that follow the operation are much less numerous than those observed after cataract-operations.

It is very important to know what the effect of the operation is on the myopia. Does it, or does it not, prevent its progress? Fukala has observed cases in which the operation was performed on one eye and not on the other, the condition remaining stationary in the eye operated upon and advancing in the other. Pflüge has observed two cases where the myopia has advanced, establishing the fact that the operation does not arrest the progress of the myopia in all cases.

In regard to the advisability of operating on one or both eyes, operators are largely agreed that if the myopia is of approximately the same degree in both eyes, the lenses should be removed from both. Operation on a single eye is advised only in cases where one eye is much more near-sighted than the other, or where there is and will be no attempt at binocular vision. Fukala urges the double operation in all cases of high myopia in which divergence or convergence is threatened, asserting that binocular vision may be retained after the crystalline lenses are removed.

The effect (Schanz, *Graefe's Arch.*, vol. xii, 1, p. 109) on vision after the operation is truly remarkable; in this all operators are agreed. The gain is usually twofold or threefold, in some cases (Fukala) tenfold. This improvement is made possible by the increase in the size of the image formed on the retina and in the more or less increased illumination. The image, before and after the operation, in myopia of 12 to 14 D. holds the approximate ratio of two to three. The power of accommodation, except in the low degree, possible to some aphacic eyes is done away with; but since the accommodation in high degrees of myopia is employed but little, this is hardly missed by the patient, and does not constitute a serious objection. The patient is enabled to read at a greater distance, can do ordinary work, and, in fact, reaps all the benefits of having a far-point at infinity.

The effect on the refraction differs in the various cases. Fukala records a difference in the refraction before and after the operation of 12.75 D. to 20 D.; Pflüge, 14.5 D. to 20 D.; Pergens, 14.5 D. to 18 D.; Von Hippel, 14 D. to 24 D.; Sattler, 11.50 D. to 20 D. The difference does not seem to bear any relation to the degree of the myopia. By the above it will be seen that the operation practically converts a highly myopic eye into an eye approaching the normal, so far as the refraction is concerned.

It is, of course, difficult to induce a person who

has useful vision to undergo an operation which, to the average layman, is full of the possibilities of disaster. The facts now at hand will enable the surgeon to hold out hopes to the patient of relief from restraint in the use of his eyes, of greatly improved vision, and of arrest of a process that must ultimately result in great impairment of vision. The operative procedure should therefore be much more readily accepted. According to Lawford (meeting of the British Medical Association), one thousand operations for the removal of the lens in high degrees of myopia have already been reported. Many of these operations have been performed in Germany, some in France, a few in England, and almost none in the United States. It is true that high degrees of myopia are met with here much less frequently than in Germany, but the cases in this country that would be benefited by the operative treatment are not a few, and it is to be hoped that they will find the relief this treatment affords.

JOHN E. WEEKS, M.D.

ECHOES AND NEWS.

Opotherapy.—Lardowzy has given the above name to the use of the animal extracts in medicine.

A Clerical Dentist.—A Sunderland (England) vicar has extracted 25,000 teeth from his parishioners in the course of his pastorate.

Sphygmogenin.—Fraenkel has isolated a principle (sphygmogenin) from the suprarenal capsules. Its presence in the blood is believed to cause increased arterial pressure.

Sanitariums for Consumptives.—It is announced that several large insurance companies are figuring on the cost of maintaining sanitariums in the Rocky Mountain regions for the accommodation of their consumptive risks.

Venereal Diseases in India.—The Government of India is quietly renewing its former stringent regulations against venereal diseases. The medical reports declare that three-fourths of the troops in every cantonment are disabled from these diseases.

The Italian Medical Congress.—The seventh Italian Congress of Medicine was held at Rome, October 20th to 24th. Subjects discussed were recent progress in the physiological pathology of the cerebrum and cerebellum, and myocardiac insufficiency.

Oceanic Gold.—Professor Liversidge of Sydney University has made chemical experiments which show that there are over 100,000,000,000 tons of gold dissolved in the ocean-water of the world, basing his calculation on the rate of one grain per ton, which he found in the water on the Australian coast.

Yellow Fever at Hoffman Island.—In accordance with a requirement of the Health Officer, an unacclimated passenger from Havana was taken to Hoffman Island, New York Harbor, October 19th, to pass the incubation-period there. He developed yellow fever the same night, and died two days later.

Leprosy in Germany.—Professor Koch, who passed ten or twelve days in the district of Memel, studying cases of leprosy and their causes, has discovered only one case. He considers the danger of infection less great than is generally supposed, otherwise the disease would have extended more rapidly.

Human Telegony.—An English doctor reports that one of his patients, married to a man with red hair, had no children. He died, and her second husband had black hair, and was otherwise very unlike her first. Several children were born from the second marriage, and all bore a striking resemblance to the first husband and had red hair.

Formic Acid in Rheumatism.—In Russia, peasants affected with rheumatism collect ants' nests in bags, which they plunge into a tub of hot water. This bath has counter-irritant properties, on account of the formic acid given off, and by bathing in it the patient is benefited. On the same principle, Indian tribes treat rheumatism with the sting of bees.

The New York County Society.—At the annual meeting of this Society, held Monday evening, October 26th, the following officers were elected: President, Dr. Landon Carter Gray; vice-presidents, Dr. Robert A. Murray, Dr. Nathan Edward Brill; secretary, Dr. Charles H. Avery; assistant secretary, Dr. William E. Bullard; treasurer, Dr. John S. Warren.

The Charlotte Medical Journal.—We notice great improvements, both in size and appearance, in this popular monthly, and congratulate the editors upon their enterprise. In a State where there does not exist a single medical school, the usefulness of a high-class medical journal cannot be overestimated, and this periodical seems to be meeting the demand in a way to meet the approval of the entire profession.

Southern Section of the American Laryngological Society. The meeting of the Southern Section of the American Laryngological, Rhinological, and Otological Society will be held in New Orleans, March 3 and 4, 1897. This will permit visiting members to see New Orleans during the Carnival season, and will enable them to secure half-rate railroad transportation. A meeting of this Society in the South is a distinctly new enterprise, and should be encouraged.

Phenyl-hydrazin Test for Sugar.—In the *Lancet*, Dr. Mark MacDonald of Liverpool says: "Of all the methods

for determining the presence of small quantities of sugar, by far the most satisfactory, to my mind, is the phenylhydrazin test. This test appears to have gained some by no means merited discredit. This is due not to the test, but to the methods of applying it. Unless one is prepared to spend time and trouble over it, it is better to leave it alone."

The Value of a Fish-diet.—The *Saturday Review* has recently taken up a controversy with some of the British medical journals on the question whether fish is the food for men of genius, and in the course of it declares that "the style and character of Dr. Johnson remained the same, whether he drank lemonade and tea or port and punch." On champagne and ortolans, the writer adds, Burns would have written neither better nor worse than on collops and toddy.

Officers of the New York Obstetrical Society.—At the annual meeting of the New York Obstetrical Society, October 20, 1896, the following officers were elected: President, Dr. R. A. Murray; first vice-president, Dr. C. A. von Ramdohr; second vice-president, Dr. G. W. Jarman; recording secretary, Dr. A. M. Jacobus; assistant recording secretary, Dr. Le Roy Brown; corresponding secretary, Dr. H. J. Boldt; treasurer, Dr. J. Lee Morrill; pathologist, Dr. G. C. Freeborn.

Change of Name.—The editors of *Mathews' Medical Quarterly* announce that with the January issue of that publication its name will be changed to *Mathews' Quarterly Journal of Rectal and Gastro-Intestinal Diseases.* This is a change which has been deemed necessary for some time, as it is essential that the title of a medical journal should convey to the reader an idea of its contents, and this has not been the case with its name from the beginning. It will continue to be the only English publication devoted to diseases and surgery of the rectum and gastro-intestinal tract. The journal will continue to be edited by Drs. J. M. Mathews and Henry E. Tuley, and published in Louisville, Ky.

The Medical Service at St. Paul's.—The unusual success of the doctors' service in St. Paul's Cathedral, London, on the anniversary of St. Luke's Guild, October 21st, is heralded as evidence of a medical rebound from materialism. The Lord Mayor went in state, the representatives of the Royal College of Physicians and Surgeons were met at the door by the Dean of the Cathedral and his staff, and robed medical representatives of the Universities of Oxford and Cambridge, Sweden, Brussels, Heidelberg, Paris, and Berlin, with a party of ladies clad in scarlet robes as doctors of medicine, made an imposing procession. Out of 5500 doctors in London, 1000 attended and listened to the Bishop of Stepney's plea for harmony between science and religion.

Vital Statistics from Damascus.—The Bureau of Statistics of Paris induced the French Government to exchange statistical matters with the Turkish Government. Both Governments consented, and the French Bureau of Statistics prepared blanks to be filled out, which were handed by the French Ambassador to the Turkish authorities. The Parisian bureau has sent six blanks. The questions to be answered were the following: "What is the death-rate of the city? 2. What is the rate of births? 3. How is the supply of drinking-water? 4. How much goods are imported? 5. How much goods are exported? 6. General remarks pertaining to the welfare and health of the people." One blank came back filled out by the chief magistrate of the city of Damascus. The blank read thus: "Answer to 1. In Damascus everyone must die at the command of Allah. Some die young, some die old, but everyone must die. 2. I cannot answer this question. Allah alone knows that. 3. Since time immemorial nobody died of want of water in the city of Damascus. 4. and 5. I never cared of my neighbor's business, and I cannot say how many camel-loads are brought to or sent from Damascus. 6. Since Allah has sent his prophet, Mohammed, into this world, who has cleansed the world with fire and sword, things are a little better, but there is much to be done yet, and much room for improvement. And now, my sweet lamb, do not ask any more such questions, which are neither good for you nor anybody else. This is the first and last blank I filled out for you.—SELAM ALEIKAM."

Relation of Mental Shock to the General Health.—Sir Benjamin W. Richardson, M.D., in *Longman's Magazine*, gives an instance of the effects of mental shock in causing permanent bad health, mental and other—effects that are all too easily inflicted in early life, whether in the period of infancy or in that of school-life. The following is an instance drawn from the latter period: A gentleman who, for many years, was under his observation as a confirmed mental invalid, a strong man in many respects, but utterly irresolute, and, in the end, of disordered mind altogether, acquired his mental disease from sudden distrust. He had, in his childhood, an innate dread of deep water, and he had, at the same time, a tutor for whom he held the warmest affection, coupled with the most absolute trust and confidence. In a thoughtless and unhappy moment this tutor became possessed with the idea that he would break his pupil's dread of deep water by pitching him into a pool where they were accustomed to bathe together, at the deepest part. There was no actual danger, for the depth was really not great, the pool was calm, the boy could swim a little, and in an instant the tutor, a strong and skilful swimmer, was in the water himself, rendering succor and support. The lad was brought to shore safely enough, but the mischief to the mind was inflicted beyond repair. His confidence was obliterated, and a fixed distrust in the mind of the youth was set up forever. If a skilful physiologist could have discovered the seat of trust in that youth and could have destroyed it mechanically, he could not have inflicted a more severe injury nor one more determinately lifelong in its effects.

The Pan-American Medical Congress.—Dr. H. L. E. Johnson announces the following transportation-rates for the meeting of the second Pan-American Medical Congress, to be held in the city of Mexico, Mexico, on No-

vember 16 to 19 inclusive, 1896: The New England roads have made no reduction at all in rates, and the trunk lines have made no general reduction, but have agreed to special rates from the points mentioned in their territory, *viz.*: From New York City to city of Mexico and return, $78.50; from Philadelphia and return, $76.00; from Baltimore and return, $73.50; from Washington and return, $71.50. Should the delegates desire to enter Mexico by one gateway, say Eagle Pass, and return via another gateway, either Laredo or El Paso, an additional charge of $5.75 total will secure such privilege. Pullman berths will cost $23.00 each way. Delegates residing in central traffic-territory, embracing the territory from Buffalo, Pittsburg, and Parkersburg, W. Va., in the East, to Chicago and St. Louis, in the West, will be accorded a round-trip ticket to city of Mexico over any of the lines, on the payment of one first-class fare. Delegates residing in the Western traffic-territory will obtain the round-trip ticket to the city of Mexico for one fare, over the following roads *only:* Missouri Pacific; Illinois Central; Wabash; Chicago & Alton; Atchison, Topeka & Santa Fé; Chicago, Rock Island & Pacific; Chicago Great Western, and Burlington, Cedar Rapids & Northern Ry. Delegates residing in Southern Pacific traffic-territory will be accorded the one-fare rate to the city of Mexico and return. The three Mexican lines have accorded the round trip for one first-class fare. The fare over the Ward Line for the round trip from New York to the city of Mexico, via Tampico, has been reduced, and for this occasion will be $78.00, including meals and stateroom. Special service is arranged for with the American Tourist Association of Chicago, who will provide a special train of sleeping- and dining-cars to run through from Chicago, Cincinnati, and St. Louis to the city of Mexico and return, connecting with the B. & O. R. R. trains from points east and north. This will be the official train and route, and will leave Chicago, Cincinnati, and St. Louis November 10th.

SELECTION.

THE DISCOVERY OF ANESTHESIA AND ITS ADOPTION IN GREAT BRITAIN.[1]

THE "WINE OF THE CONDEMNED" IN ANTIQUITY.

THE idea of blunting the sensibility by artificial means, in order to lessen the pain caused by the knife and the cautery, is almost as old as surgery. The ancient Egyptians are believed to have used Indian hemp and poppy-juice for the purpose, and the *φάρμακον νηπενθὲς*, the sorrow-easing drug, which, we are told in the fourth book of the "Odyssey," was given by Helena to Ulysses and his comrades, may have contained these substances; at any rate, it is expressly stated that she had learned its composition from Polydamnia, the wife of Thone, in Egypt. The "wine of the condemned," referred to by the prophet Amos (ii. 8), is conjectured by Simpson to have been a preparation of cannabis indica. Whatever it was, it in all probability was a narcotic potion of some kind. The Jews were more humane in their method of dealing with condemned criminals than the Greeks or the Romans. In the Talmudic writings there are several passages which seem to show that it was the practise to ease the pain of torture and death by stupefying the sufferers. Thus: "If a man is led forth to death, he is given a cup of spiced wine to drink, whereby his soul is wrapped in night;" and again: "Give a stupefying drink to him that loseth his life, and wine to those that carry bitterness in their hearts." According to tradition, while the Roman conqueror held sway in Palestine, and crucifixion was a common punishment of malefactors, the Jewish women, with the sanction of the Sanhedrin, were wont to ease the death-agony of the sufferers by giving them something in the nature of a "wine of the condemned" upon a sponge. It is probable that the "wine mingled with myrrh," which, according to St. Mark (xv. 23), was offered to Christ while he was hanging on the cross, was a narcotic draft intended to make death painless. In China it is well known that opium is used to the present day, and executioners are often bribed to allow it to be administered before they begin their cruel work.

The Greeks also used means to deaden sensibility to pain. Pindar tells us that Machaon eased the sufferings of Philoctetes with a narcotic potion. Theocritus speaks of Lucina, the goddess whose specialty was the obstetric art, pouring an insensibility to pain down all the limbs of a woman in labor. Unfortunately no details are given of the method adopted. The narcotic properties of mandragora (*Atropa mandragora*, L.), which is allied to our *Atropa belladonna*, or deadly night-shade, appear, however, to have been known to the Greeks, and various preparations of that plant were in use as anesthetics among the Romans. The younger Pliny (A.D. 32–79), in his "Natural History," says that a decoction of it was used by way of preparation for surgical treatment: "Bibitur contra serpentes et ante sectones punctionesque ne sentiantur." The agent was sometimes inhaled, as is clear from Pliny's remark that in some cases sleep may be induced by the smell. Dioscorides (circ. 50 A.D.) gives several prescriptions for the use of the drug for the same purpose. One of these, as quoted by Simpson, is as follows:

"Some persons boil the root in wine down to a third part and preserve the decoction, of which they administer a cyathus in want of sleep and severe pains of any part, and also before operations with the knife or the actual cautery that they may not be felt."

Of a special variety of the plant which was called *μώρτον*, probably because it engendered *μωρία*, or foolishness, in those that partook of it, the same author speaks as follows:

"They relate that a dram of it being taken as a draft, or eaten in a cake or other food, causes infatuation and takes away the use of the reason. The person sleeps without sense in the attitude in which he ate it for three or four hours afterward. Medical men also use it when they have recourse to cutting or burning."

Atropa mandragora grows in the Grecian Archipelago, and Sir Benjamin Ward Richardson says that many years ago he received some specimens from the late Mr.

[1] From *The British Medical Journal.*

Daniel Hanbury, who had collected them while traveling in Greece. Sir Benjamin prepared a draft of mandragora according to the prescription of Dioscorides. He says that "the phenomena repeated themselves with all faithfulness," and he adds that "there can be no doubt that in the absence of our now more convenient class of anesthetics, morion[1] might still be used for general anesthesia." Seneca, Apuleius Lucius, and other ancient authors also refer to the narcotic effects of mandragora. From a casual reference made by the theological writer Origen to a draft which cast patients, when surgical operations are to be performed, into a deep sleep, the practise of inducing anesthesia would appear to have been common in the third century. The drug used was doubtless mandragora. In the same century Indian hemp was employed for the same purpose in China.

In a collection of old Chinese writings, entitled Kou-Kin-I-Tong, presented many years ago to the French Academy by M. Stanislas Julien, there is a biographical sketch of a surgeon named Moa-Tho, who, in the years 220–230 of our era, gave patients on whom he wished to perform painful operations a substance called Ma-Yo, which is said to have been Indian hemp, the effect of which was that after a few moments they became insensible, as if they were drunk or deprived of life.

A local anesthetic agent is referred to by Pliny and Dioscorides as *lapis Memphiticus*, or Memphis stone. This, powdered and mixed with vinegar, was applied to parts which were to be cut or burned. Littré conjectures that this stone was a kind of marble which, on the addition of vinegar, gave off carbonic acid, which deadened the sensibility of the nerve-ends. Withington suggests that it may have been a kind of bitumen, and that such anesthetic effect as it may have had was due to the phenol which it contained.

THE "DROWSY SIRUPS" OF THE MIDDLE AGES.

Down to the sixteenth century, mandragora was in more or less general use as an anesthetic. The most celebrated prescription for its use was that given in the "Chirurgiæ" of Theodoricus of Lucca, Bishop of Cervia (lib. 4, cap. viii.), under the name of "Spongia Somnifera." Theodoricus, who died in 1298, was the son of the famous surgeon Hugo of Lucca, and was himself at the beginning of his career a surgeon. On entering the Church he published the secrets which he had learned from his father. The following is the composition of the "sleeping sponge:"

"Take of opium, of the juice of the unripe mulberry, of hyoscyamus, of the juice of hemlock, of the juice of the leaves of mandragora, of the juice of the woody ivy, of the juice of the forest mulberry, of the seeds of lettuce, of the seeds of the dock which has large round apples, and of the water hemlock—each an ounce; mix all these in a brazen vessel, and then place it in a new sponge; let the whole boil as long as the sun lasts on the dog-days until the sponge consumes it all, and it has boiled away in it. . . . As oft as there shall be need of it place this sponge in hot water for an hour and let it be applied to the nostrils of him who is to be operated on until he has fallen asleep, and so let the surgery be performed."

After the operation the patient was to be aroused in the following manner:

"This being finished, in order to awaken him, apply another sponge dipped in vinegar frequently to the nose, or throw the juice of the root of fenugreek into the nostrils; shortly he awakens."

The "Confectio Soporis Secundum Dominum Hugonem" was still in use in the sixteenth century as we learn from Jean Canappe, whose work, "Le Guidon pour les Barbiers et les Chirurgiens," was published in 1538. The concluding sentence of the following passage shows that opium was also used as an anesthetic in his day:

"Aucuns, dit-il, comme Theodoric, leur donnent médicines obdormifères qui les endorment, afin que ne sentent incision, comme opium, succus morellæ, hyoscyami, mandragoræ, circutæ, lactucæ, et plongent dedans esponge et la laissent seicher au soleil, et quand il est necessité, ilz mettent cette esponge en eaue chaulde, et leurs donnent à odorer tant qu'ilz prennant sommeil et s'endorment; et quand ilz sont endormis, ilz font l'opération: et puis avec une autre esponge baignée en vin aigre et appliquée ès narilles les esveillent, ou ilz mettent ès narilles ou en l'oreille, succum rutæ ou feni, et ainsi les esveillent, comme ilz dient. Les autre donnent opium à boire, et font mal, spécialement s'il est jeune, et le apercoivent car ce est avec une grande bataille de vertu animale et naturelle. J'ai ouï qu'ilz encourent manie et par conséquent la mort."

Dr. E. T. Withington, in his "Medical History from the Earliest Times," quotes the following recipe from the author of the "Breviarium" (Arnald of Villanova?):

"*To produce sleep so profound that the patient may be cut and will feel nothing, as though he were dead.* It is an 'experimentum' of Magister Michael Scot. Take of opium, mandragora-bark, and henbane-root, equal parts, pound them together, and mix with water. When you want to sew or cut a man, dip a rag in this and put it to his forehead and nostrils. He will soon sleep so deeply that you may do what you will. To wake him up, dip the rag in strong vinegar. The same is excellent in brain-fever, when the patient cannot sleep, for if he do not sleep he will die."

A somewhat similar prescription is given by Nicholas, provost of the famous old medical school of Salerno, in his "Antidotarium."

The idea of anesthesia produced by drugs was familiar to medieval romance-writers and poets. In Boccaccio's "Decameron" the catastrophe of one of the stories turns on a gallant drinking by mistake a draft prepared by a surgeon for a patient whose leg he was about to amputate. Marco Polo tells us that the Old Man of the Mountain used to drug his victims. Du Bartas, in the sixteenth century, wrote (as Englished by Silvester):

> Even as a surgeon, minding off to cut
> Some cureless limb, before in use he put
> His violent engines on the vicious member,
> Bringeth his patient in a senseless slumber,

[1] Sir Benjamin uses the word "morion" as denoting the potion itself rather than the particular kind of mandragora from which it was made. He further translates "morion" as "death-wine," as if it had something to do with the Latin *mori*, an etymology which, as Count Smorltork might have said, "surprise by himself."

> And griefless then (guided by use and art)
> To save the whole cuts off th' infected part.

Shakespeare's allusions to poppy, mandragora, and other "drowsy sirups," are too familiar to need quotation, but the following passage from a somewhat later dramatist is interesting. Middleton, in a play called "Women, Beware Women," writes:

> I'll imitate the pities of old surgeons
> To this lost limb, who, ere they show their art,
> Cast one asleep, then cut the diseased part.

In the days of the rack and the thumbscrew it was natural that there should be traditional secrets among criminals for baffling their tormentors. The following passage is quoted by Simpson from "Le Procès Criminel" of Claude Lebrun de la Rochette:

"As to their artifices not to feel the pain of the rack, I saw in the first year of my reception at the bar of Beaujolais, which was in the year 1588, that one of four thieves who were prisoners, the chief named Grand François, a man of gigantic stature, was put to the rack, fell asleep, and the toes were torn from both his feet, without his manifesting any signs of pain. One of his companions observed that he had eaten soap, which stupefied the nerves. The remedy to the artifice is to give wine, which being brought and drunk, he then said he was dead, and without further torture freely confessed an infinite number of murders and robberies."

From other writers of the same period it may be gathered that soap dissolved in clear water was believed by the poor wretches, who went in fear of the attentions of the ministers of the law, to have the power of making them insensible to torture.

Local anesthesia was not unknown. Besides the Memphis stone already referred to, we read of inunctions of opium, celandine, saffron, the marrow and fat of a man, with the oil of lizards, as likely to help a person on the rack in withholding the confession it was desired to extract from him. Bernard states that the Salernitans used to rub up poppy-seed and henbane and apply them as a plaster to deaden sensibility to parts to be cauterized.

Local anesthesia was sometimes produced by freezing, as is shown by the following passage from Thomas Bartholinus:

"Antiqua cauterio ulcera in membris excitentur; nix affricata induit stuporem. Id me docuit Marcus Aurelius Severinus in Gymnasio Neopolitano olim præceptor meus et hospes, Chirurgorum hoc sæculo princeps. Rectissime autem nivem in vasculum materiæ convenientis capax, sed oblongâ ad extremum et myrtiformi specie, conjectam, sine rei ullius interventu applicavit. A gangrænæ metu securos nos jussit, medicamento sub angustis parallelis lineis applicato, sensu vero post horæ quadrantem sopito, secare locum indolentum licebit."

About the end of the sixteenth century the belief in mandragora and other substances so long credited with anesthetic properties seems to have died out rather suddenly. Ambroise Paré speaks of the "spongia somnifera" as "used formerly" by operators. Simpson conjectures that it was found too dangerous; Snow, however, expressed his "utter disbelief that a sponge containing the oil prepared as above, would, after being placed in hot water, give off any odor or vapor that would cause insensibility." However that may be, we do not hear much of anesthetic drafts or inhalations till near the end of the century. In 1782, Weiss, a pupil of J. L. Petit, is said to have operated on the foot of Augustus, King of Poland, while the royal patient was under the influence of "a certain potion surreptitiously administered."

Other means of producing insensibility were tried and one after the other found wanting. Compression of the carotid arteries, which, according to Casper Hoffmann, used to be practised by the Assyrians of old in the circumcision of boys, was employed by Valverdi and others in the sixteenth and seventeenth centuries. Morgagni used this method in vivisection of animals, and suggests that it might be used on human beings. Surgeons have, however, left this mode of producing anesthesia to garoters, who found it very successful for the particular purpose they had in view. Compression of the nerves supplying the limb to be removed was proposed by James Moore in 1784, and was tried with no very brilliant success by Hunter, Malgaigne, and others. Three years before, Sassard, surgeon to the Charité of Paris, had recommended that patients should be prepared for the knife by free drugging with narcotics as a means of preventing shock. In 1800, Humphry Davy in experimenting with nitrous oxid gas found that it relieved pain. To quote his own words:

"The power of the immediate operation of the gas in removing intense physical pain I had a very good opportunity of ascertaining. In cutting one of the unlucky teeth called *dentes sapientiæ*, I experienced an extensive inflammation of the gum, accompanied with great pain, which equally destroyed the power of repose and of consistent action. On the day when the inflammation was most troublesome I breathed three large doses of nitrous oxid. The pain always diminished after the first four or five inspirations, the thrilling came on as usual, and uneasiness was for a few minutes swallowed up in pleasure. As the former state of mind, however, returned, the state of organ returned with it."

In the following passage Davy clearly points out the anesthetic properties of the gas and the use to which they might be put by surgeons:

"As nitrous oxid in its extensive operation appears capable of destroying physical pain, it may probably be used with advantage during surgical operations in which no great effusion of blood takes place."

The anesthetic effects of ether were also plainly enough shown by the case of Lady Martin, reported by Sir Thomas Watson in his classical "Lectures on the Principles and Practise of Physic:"

"Long before its power was used to prevent the inflicted pain of surgical operations, the vapor of ether had been successfully employed to suppress the inbred sufferings of natural disease. A former patient of mine told me this story of herself. She had been sorely tried, in her earlier years, with paroxysms of urgent dyspnea,

frequently recurring, and her life was thought to be in danger. After fruitless trials of various other remedies, the following method was adopted, with the happiest result, under the advice of a physician of high promise, who died young, the late Dr. Woolcombe of Plymouth.

"About two teaspoonfuls of sulphuric ether were poured into a saucer, which was placed on her lap, and over which she breathed, as she sat gasping in bed, with a shawl thrown over her head to prevent the escape of the vapor. Very soon a delightful sensation of tranquility ensued; she felt (I quote her own words) 'as if going to heaven in a most heavenly way;' and presently she sank back unconscious. As soon as this happened, her husband (the late distinguished Admiral of the Fleet, Sir T. Byam Martin), by whom the process was managed, withdrew the shawl, and in a short time Lady Martin gradually recovered, breathing calmly."

"This mode of quieting her attacks of asthma was begun in 1806, a few years after the publication of Sir Humphry Davy's hint; and it was repeated again and again, sometimes twice in the same day, for a very considerable period. Lady Martin survived the prediction of her speedy death for forty-three years."

But the teaching of this case and the more explicit statement of Humphry Davy were overlooked, and both nitrous oxid and ether remained little more than scientific playthings, which were used by professors of chemistry to relieve the tedium of their prelections. Meanwhile the operating-theater continued to be a place of hideous torture, and surgeons were often too glad to take advantage of any means of escape from the necessity of using the knife.

THE ADVENT OF TRUE ANESTHESIA.

So far the history of the efforts to free surgery from the black shadow of pain which darkened its footsteps had been a record of delusion and failure. Surgeons had given up hope of finding any means of masking the terrors of the knife, and Valpeau had declared that "the prevention of pain in operations is a chimera which it is not permitted to pursue." Yet the words had scarcely been written when the problem which so long had been the "mere despair of surgery," and which had just been pronounced on such high authority to be insoluble, was triumphantly solved. This great step in the progress of mankind we owe to America. To a young dentist of Hartford, Conn., belongs the credit of having practically proved for the first time the possibility of abolishing sensation so utterly that a painful operation could be done without being felt.[1]

ORIGIN OF THE TERM ANESTHESIA.

The proper naming of a new substance or a new process is often almost as troublesome as the discovery of it. Soon after the memorable 16th of October a meeting was held at the house of Dr. A. A. Gould, in Boston, to choose a name for the last heir of Morton's invention. At this meeting were present Dr. Henry J. Bigelow, Dr. O. W. Holmes, and Dr. Morton, and Dr. Gould read aloud a list of names which he had prepared. On hearing the word "Letheon" Dr. Morton exclaimed, "That is the name the discovery shall be christened." Dr. Gould and others also favored this name, which is derived, of course, from Lethe, the river of forgetfulness. Subsequently, however, Dr. Holmes wrote a letter to Dr. Morton in which he proposed the name which has since come into general use.

THE FIRST OPERATION UNDER AN ANESTHETIC IN ENGLAND.

The first operation under ether in this country was performed by Robert Liston in University College Hospital on December 22, 1846. Among those present on the occasion were the late Sir John Erichsen, Sir Joseph Lister, Mr. William Cadge of Norwich, Dr. W. H. Ransom of Nottingham, and Dr. William Squire.[1] Mr. William Cadge has been good enough to send us the following interesting note on the subject:

"I have no written notes of what took place on that memorable occasion, and I must trust to my memory, which may betray me into mistakes as to some minor details, but as to the main incident of amputation of the thigh, the scene was too startling and dramatic ever to be erased from my recollection.

"Dr. Boot of Gower street had reported to Mr. Liston the definite and authentic information of the effect of ether-inhalation that he received from Dr. Bigelow of Boston in December, 1846. Two days after this communication was the operating-day at University College Hospital, and Liston resolved to put the matter to the test. In the interval, Mr. Squire, the well-known chemist of Oxford street, prepared the apparatus, and Mr. (now Dr.) Squire administered the ether.

"On December 21, 1846, at two o'clock, the operating theater was filled with students and spectators; Liston addressed a few words to them as to the nature of the experiment about to be tried, and it was manifest that he had but faint hopes of its success.

"The patient was a man rather below middle age who, to the best of my recollection, had malignant disease of the skin and tissues of the calf of the leg, for which amputation of the thigh was deemed to be necessary. He was a man of courage and of intelligence above the average of hospital patients, and he expressed his willingness to try the inhalation of ether. The apparatus comprised a large bell-shaped glass reservoir containing ether, and a long tube and mouth-piece. Fortunately the vapor caused no bronchial irritation or nervous excitement; the patient passed easily into complete insensibility, and Liston removed the thigh as rapidly as possible; a gentleman present, watch in hand, declared that the cutting operation lasted thirty-two seconds only. It was done by the antero-posterior flap-method; the femoral artery was con-

[1] The discovery of the anesthetic influence of nitrous oxid in 1844 by Horace Wells, who is referred to above, his public failure to demonstrate its value in the surgical amphitheater of the Massachusetts General Hospital, and the subsequent success of ether in the hands of his associate Dr. W. T. G. Morton in the same place on October 16, 1846, are facts in the early history of anæsthesia in the United States so well known by every American that we shall economise space by omitting an extended treatment of them at this point.—[ED.]

[1] See Dr. Squire's own account on a subsequent page.—[ED.]

trolled by finger-pressure; only three or four vessels required a ligature; lint dipped in water was placed between the flaps, and the stump was folded in a towel and all signs of blood cleared away.[1]

"In a few minutes the patient woke up completely, and could answer these questions: 'Did he feel able to undergo the pain of the operation?' 'Yes, he would submit as best he could.' 'Did he not know that the limb was off?' Then he remonstrated against trifling with his feelings at such a moment; but, when the towel was removed from the uplifted stump so that he could see it, he burst into tears and fell back on his pillow.

"The scene at this moment was most impressive, for the success of the whole proceeding was as complete as could be witnessed at the present time. The great surgeon was almost as much affected as the patient; he saw at a glance what a blessing was in store for the human race, and what a boon for the surgeon, and he could scarcely command himself sufficiently to address even a few words to the spectators.

"The next case did not go off so smoothly. The patient was a rough fellow with an ingrowing toe-nail. He became boisterous and violent under the inhalation; he thrust the assistants on one side, jumped off the table, and, so far as I remember, escaped from the theater. He must, however, have been restrained or brought back and rendered insensible, seeing that the necessary operation was done without pain.

"Liston for that day could think of nothing but this wonderful discovery. He wrote this short note to Dr. Boot: '5 Clifford street, December 21, 1846. Dear Sir,—I tried the ether-inhalation to-day in a case of amputation of the thigh, and in another requiring evulsion of both sides of the great toe-nail, and with the most perfect and satisfactory results. It is a very great matter to be able thus to destroy sensibility to such an extent without apparently any bad result. It is a fine thing for operating surgeons, and I thank you most sincerely for the early information you were so kind as to give me of it. Yours faithfully, Rob. Liston.' He also wrote a characteristic letter to his old friend and former assistant, Professor Miller of Edinburgh. I think the letter found its way into a Scotch newspaper, but I can only remember that it began and ended with a quotation from St. Paul, 'Rejoice, and again I say rejoice.'

"That evening I dined with Mr. Liston (I was acting as his private assistant at the time). Two ladies were present, and after the cloth was removed nothing would content him short of my exhibiting the effects of ether by inhalation. When about half under its full effect I could just hear the elder lady say, 'Liston, for God's sake stop; you will be the death of that poor young man.' He did stop, but I felt the effect of his strong grip of the lobe of the ear for a day or two."

CHLOROFORM.

To no man in this country was the announcement that a means of inducing anesthesia had been discovered more welcome than to Dr. James Young Simpson, at that time Professor of Midwifery in the University of Edinburgh. As his daughter, Miss Eve Blantyre Simpson, relates in the most interesting "Life" of her distinguished father, with advance-sheets of which we have been favored,[1] "very early in his student days he had been so sickened at the suffering he witnessed in the operating-theater that he had shrunk from the scene, decided to abandon his medical studies, and seek his way in the paths of the law." Happily for mankind—and particularly for womankind—he did not carry out this determination. As soon as he heard of the use that was being made of ether for surgical purposes in America, he tried it in midwifery. This was on January 19, 1847, and Simpson was the first to use the anesthetic for the relief of the pains of labor. Finding, however, after a time, to quote his own words, that "no busy obstetric practitioner could extensively employ sulphuric ether without inevitably carrying about with him, and upon his clothes, an odor so disagreeable to many other patients, and other houses, as to make his presence there aught but desirable," he set himself to discover something better than ether. Speaking of this search he said:

"Latterly, in order to avoid if possible some of the inconveniences pertaining to sulphuric ether, particularly its disagreeable and persistent smell, its occasional tendency to irritation of the bronchi during its first inspirations, and the large quantity of it required to be used (more especially in protracted cases of labor), I have tried upon myself and others the inhalation of different other volatile fluids, with the hope that some one of them might be found to possess the advantages of ether without its disadvantages. For this purpose I selected for experiment and have inhaled several chemical liquids of a more fragrant or agreeable odor such as chlorid of hydrocarbon, etc. Then Mr. Waldie, a Linlithgowshire man, first named perchlorid of formyl as worthy among others of a trial.

Dr. Jacob Bigelow of Boston and Mr. Jacob Bell, a well-known London pharmacist, had both previously tried chloric ether, and Mr. Bell's experiments had been so successful that Mr. Lawrence used it in surgical operations. Bell, however, failed to recognize that it was the chloroform in the chloric ether that produced insensibility. Mr. David Waldie, who was connected with the Apothecaries' Company at Liverpool, seems to have guessed that chloroform was the active agent, and he promised to procure some for Simpson. There was some delay in carrying the promise into effect, however, and in the meantime Simpson, who was not a man to let the grass grow under his feet, got some chloroform from Messrs. Duncan and Flockhart of Edinburgh, and at once began to experiment with it on himself and his assistants, Dr. George Keith and the late Dr. Matthews Duncan and others. The first trial of chloroform was made in Simpson's house on No-

[1] This was Liston's usual method of amputation. It was the duty of the house-surgeon in the evening, after full reaction from shock, to remove the lint, tie any bleeding points if necessary, and close the flaps with a few points of suture and isinglass-plaster.

[1] The book will shortly be published as one of the "Famous Scots Series," now being issued by Messrs. Oliphant, Anderson, & Ferrier of Edinburgh and London. We have much pleasure in acknowledging the courtesy of the publishers, and of the editor of the series (Mr. Oliphant Smeaton) in the matter.

vember 4, 1847. Miss Simpson quotes the following passage from a letter written by her father to Mr. Waldie, who had drawn his attention to chloroform:

"I am sure you will be delighted to see part of the good results of our hasty conversation. I had the chloroform for several days in the house before trying it, as after seeing it such a heavy unvolatile-like liquid, I despaired of it, and went on dreaming about others. The first night we took it Dr. Duncan, Dr. Keith, and I, all tried it simultaneously, and were all 'under the table' in a minute or two."

Miss Simpson also quotes the following passage from a letter written to her by Dr. George Keith in 1891:

"Dr. Miller, in the appendix to his work on surgery, published soon after, gives a full account of the scene. It is pretty correct, only he says we all took the chloroform at once. This, with a new substance to try, would have been foolish, and the fact is, I began to inhale it a few minutes before the others. On seeing the effect on me, and hearing my approval before I went quite over, they both took a dose, and I believe we were all more or less 'under the table,' much to the alarm of your mother, who was present."

FAR STRONGER AND BETTER THAN ETHER.

Miss Simpson adds that Professor Miller, who was their neighbor, used to come every morning to see if the experimenters had survived. The following passage, which embodies Professor Miller's account of the proceedings, will doubtless be read with interest:

"These experiments were performed after the long day's toil was over, at late night or early morn, and when the greater part of mankind were soundly anesthetized in the arms of common sleep. He describes how, after a 'weary day's labor,' the two sat down and inhaled various drugs out of tumblers, as was their custom, and chloroform was searched for and found beneath a heap of waste-paper, and with each tumbler newly charged the inhalers resumed their occupation. . . . A moment more, then all was quiet; then a crash. On awakening, Dr. Simpson's first perception was mental. 'This is far stronger and better than ether,' said he to himself. His second was to note that he was prostrate on the floor, and that among the friends about him there was both confusion and alarm. Of his assistants, Dr. Duncan he saw snoring heavily, and Dr. Keith kicking violently at the table about him. They made several more trials of it on that eventful evening, and were so satisfied with the results, that the festivities of the evening did not terminate to a late hour, three A.M."

On November 10, 1847, Simpson communicated his discovery to the Medico-Chirurgical Society of Edinburgh in a paper entitled "Notice of a New Anesthetic Agent as a Substitute for Sulphuric Ether." On November 15, 1847, chloroform was used for the first time in a surgical operation in the Edinburgh Royal Infirmary. A public trial of the new agent had been proposed for a previous date, but fortunately for the future of chloroform Simpson could not be found in time to give it, and the patient was operated on without an anesthetic. The case was one of strangulated hernia, and the operator, Professor Miller, had only proceeded the length of dividing the skin when the patient fainted and died with the operation unfinished.

As Simpson himself says: "If the chloroform had happened to be used and this fatal syncope had occurred while the patient was under its action, the whole career of the new anesthetic would have been at once arrested." On the first occasion of its use, three patients were operated on successfully under its influence. One of them (a soldier) was so pleased with the new elixir of oblivion that on awaking after the operation "he seized the sponge with which administration had been made and, thrusting it into his mouth, again resumed inhalation more vigorously than before, as if it were too good a thing to be stopped so soon." At this first public trial of the new anesthetic Dumas, the great French chemist, who had first definitely determined the composition of chloroform, was present, "and was in no small degree rejoiced to witness the wonderful physiological effects of a substance with whose chemical history his own name was so intimately connected."

OPPOSITION TO ITS USE.

Strange to say, the introduction of chloroform met with great and even violent opposition in many quarters. It was not received with enthusiasm by the profession. Surgeons probably were inclined to look askance at a thing which came to them from an obstetrician. Moreover, it was a prevalent belief among them that the pain of an operation was a useful stimulant to the patient. On this ground, as we learn from Sir William Priestley (whose authority we have for citing him as the author of an excellent account of the beginnings of chloroform, which appeared in Dicken's *Household Words* on February 12, 1859), the chief of the Army Medical Staff recommended the surgeons during the Crimean army not to use chloroform. Fanatical clergymen denounced its use in labor as an impious attempt to evade the curse pronounced by the Almighty on Eve and all her daughters. Simpson fought these men with their own weapons, pointing out that the first operation under an anesthetic had been performed by God himself when he cast Adam into a deep sleep before removing his rib. The "scientific" objectors he met with a wealth of convincing argument reinforced by statistics which bore down all opposition. The fight was an obstinate one, but Simpson was victorious, and chloroform won the place, which it held for many years, as the anesthetic most widely used in this country. Its triumph was greatly helped by the courageous example of Queen Victoria, who submitted to be anesthetized at the birth of the late Duke of Albany and at that of Princess Henry of Battenberg. Dr. Snow was the administrator on each of these occasions. On the former of them the inhalation lasted fifty-three minutes. The chloroform was given on a handkerchief in 15-minim doses, and the Queen expressed herself as greatly relieved by the administration. Dr. Snow said that Her Majesty was a model patient.

A LADY'S RETROSPECT.

We have been favored with the following interesting

reminiscences from the wife of a distinguished physician, who was well acquainted with Sir James Simpson:

"I remember one evening entering my mother's drawing-room and finding the professor in the midst of a group of girls all lost in slumber, some just going under the heavenly influence, others coming round. The room reeked with the smell of chloroform. Presently I subsided into the corner of a sofa, and seeing a suspicious-looking handkerchief by my side took it up, found it soaking with something, smelled it, inhaled it, and soon went 'glittering through a dream of things that were.' I knew no more till I came round to a consciousness of the lights in the chandelier above, and of the professor flitting about in great glee calling everybody 'dear.'"

ANESTHETICS AND EXPERIMENTS ON ANIMALS.

It has recently been stated[1] that as regards the "instauration of anesthesia" "there is no suspicion of any experiment on a lower animal in connection with it." This is not the case. Experiments on animals were made by Morton, by Snow, and by Simpson. Simpson's life was, in all probability, saved by an experiment on animals. Lord Playfair speaking in the debate on vivisection in the House of Commons in 1883, related how Simpson in his search for an ideal anesthetic came to his laboratory. A new liquid was put in his hand, and Simpson wanted to inhale it there and then. Playfair, however, insisted on first trying it on two rabbits, which speedily died. Simpson, like Morton, was a reckless experimenter on himself. Miss Simpson tells us that he was once found insensible in his room by his servant Clarke, who said, "He'll kill himsel' yet wi' thae expeeriments, and he's a big fule, for they'll never find onything better than chlory."

THE WORK AND THE WORKERS.

To sum up the story of anesthesia: Nitrous oxid, for surgical purposes, was discovered by Horace Wells; ether we owe to William Thomas Green Morton; chloroform to James Young Simpson. Among these, the largest share of glory may fairly be allowed to Morton, of whom we may say, with Dr. Jacob Bigelow, that "as far as we know he was the only man without whom inhalation might have remained unknown to the present day." To Simpson, however, unquestionably belongs the merit of having made anesthesia triumph over all opposition. For this he deserved the rewards which fell to him in the evening of his days, and the motto which he chose when he was made a baronet, *Victo Dolore*, is the expression of a truth, and not an empty boast.

THE FIRST OPERATION UNDER ETHER IN GREAT BRITAIN.

BY WILLIAM SQUIRE, M.D., F.R.C.P.

Looking back fifty years to the induction of anesthesia by the inhalation of ether-vapor during surgical operations, my own share in securing the early success and general adoption of this method seems to me greater now than it did at one time. With the first announcement from America no details of the mode of administration were received, and failure at the outset would have brought discredit on the discovery, and might have delayed indefinitely the benefit it offered. Several circumstances combined in producing the successful result attained. I had come up to University College in October, 1846, after two or three years' pupilage with an old student of the college, bringing introductions to Quain and Liston, together with specimens of bony union in fractured neck of the femur now in the College of Surgeons. I had assisted Robert Ceely in his experimental transfer of variola into vaccinia, and had gained an interest in surgery from my teacher at Chesham, and from Aston Key at Hemel Hempstead.

Liston, a friend of my uncle the chemist, drew my attention to some cases in his wards, and especially to a delicate fair-haired man, worn out with suppurating knee-joint disease and loss of sleep from the "jerks" caused by eroded cartilage; the man from weakness and fear had more than once refused his consent to amputation. On Saturday, December 20th, I think, Liston came early to the hospital with news of Morton's discovery; he took me with some ether from the hospital to the house of Dr. Boot, and then to Mr. Robinson's opposite; but little ether had been used in the case of the lady who had first submitted to the dentist's hands, whether on that or the previous day I cannot say, but the second case of tooth-extraction at the dentist's house was a failure, not from want of a supply of ether but from want of efficient means of giving sufficient to prevent or overcome the excitement it occasioned. To risk such failure at the hospital, or a repetition of the O'Key's mesmeric deceptions, then of recent notoriety, was out of the question, but ether-vapor had been inhaled in the chemistry-class at the college as well as nitrous oxid in the same manner from a bag, while Hutchinson's spirometer was then in daily use. A more efficient means of administration was evidently needed, and Liston drove me to my uncle's laboratory to see what better means could be devised.

My confidence in success was unshaken; I had breathed ether in the College demonstrations, and had noticed that while under its influence my knuckles were bruised against the iron edge of the class-room desks without any sense of pain at the time. With a larger supply of vapor than that supplied for inhalation at the College, less excitement and further insensibility might be produced. Among the glass vessels in Oxford street was one sufficiently large, with an opening below where a good-sized tube could be fixed, and a larger one above where more ether could be introduced; this was at first closed with a sponge, a suitable tube was fitted into the lower opening, and for a mouthpiece a folded towel was bent into a funnel, the tube inclosed in the apex of the cone,[1] and when Liston returned in the afternoon all was in readiness. Enough ether to produce the volume of vapor required to fill the vase was put into it, and the upper opening filled with a new sponge on which the same quantity of ether was poured, and I commenced inhalation. At first I could not hold the cone close to my face, but soon took it in deep

[1] Sir B. W. Richardson, "Biological Experimentation," London, 1896, p. 47.

[1] The sponge soon found its way into the cone, or the ether was sprinkled there without the intervention of jar and tube.

breaths, and evidently soon became unconscious and dropped the tube. Liston made a small puncture under my finger-nail, and was satisfied as to my insensibility to pain. It was arranged for us to meet at Mr. (now Sir Edwin) Sanders' the next morning, and, as my uncle had to be in his hands, he would try its effects.

I made further experiments upon myself on Saturday, and my uncle's chief assistant, Mr. John Taylor, now of 14 Baker street, consented to a further experience. At this time a small glass vessel with two openings, one fitting into the larger vase and another at top, was used to contain the sponge, and a larger supply of ether was used. When my subject began to tolerate the stronger vapor, I brought the smooth base of the cone over the nose and the lower end of it under the chin, and a very quiet and complete anesthesia was produced, which lasted some minutes after the inhalation ceased. The meeting at Mr. Sanders was deferred, and Liston, after further demonstration in Oxford street, arranged for the removal of the diseased knee next day at the hospital, the patient being only too glad to submit himself to the prospect offered him. Notes were sent to several men of eminence in the profession, among others to Mr. Wakley, who was present; Mr. Cadge, now of Norwich, accompanied Liston; Dr. Ransom, now of Nottingham, was one of Liston's dressers at this time. On Monday I took the glass vase and a supply of ether prepared by my uncle to the hospital. I have seen it stated by an intimate friend that he was present at the operation, but neither he nor my friend were in the operating-theater, and neither of them had much liking for that arena. A similar mistake as to my uncle's administering ether for surgical operations has been made more than once.

The first operation in London under ether has been described elsewhere. A more striking display could hardly be imagined; the general effect upon the foremost professional men present was almost of awe, yet not unlike that expressed by the American surgeon Warren, after his first operation under ether, administered by Dr. W. T. G. Morton, "Gentlemen, this is no humbug." Liston said nothing. My own sensations were chiefly directed to the aspect of the patient; the look of alarm on his emaciated pale face soon gave way to the flush of ether; his quiet breathing and calm repose were a joy to witness. When unconsciousness was reached, Liston completed the amputation at the thigh by the flap-operation in twenty-eight seconds from the first thrust of the knife to the last touch of the saw. It had been arranged for the arteries to be tied after the patient had been carried from the operating-table to an adjoining room, but his deep and quiet sleep continuing, the arteries were leisurely secured, and the flaps closed in Liston's usual manner, and neatly dressed, before the return of consciousness was announced by the patient's old cry of, "I can't have it done, I must die as I am." On being told that all was over, he said he still had pain extending to the toes, then when gently raised to see the shortened limb the look of delight in his face will never pass from my mind while memory holds its place. Liston could hardly speak at first, and finally said that he was as surprised as those around him.

Had I not myself felt that ether could annul pain and seen it inhaled in the chemistry-class; had I not been so much noticed by Liston and interested in this particular patient; had I not had the resources of my uncle, Mr. Peter Squire, at hand, and been assisted by his experience and ready invention, the full effects of this anesthetic would not have been obtained and made so evident in the course of one or two critical days. The next few days were fully occupied in administering ether-vapor and inhaling it myself. Some failures were met with small tubes, where imperfect mouthpieces or insufficient vapor were used. One Friday evening, soon after Christmas, I went with Mr. Taylor to the Royal Institution with a somewhat cumbrous inhaler, where he submitted to complete anesthesia at my hands before the assembled members.

During a short Christmas holiday my respiration was so impeded by frequent inhalations of ether that I could not face the outside coach-journey of forty miles to my home in Bedfordshire. I returned to my interrupted medical studies henceforth in close company with Russell Reynolds. I once gave ether for Dr. Murphy in some obstetric difficulty; sometimes I gave ether at the hospital until Thomas Park and Clover took it up, and there met Dr. Snow. Chloric ether, used by Morton before sulphuric ether, was tried, I believe, at St. Bartholomew's Hospital, the form used, like the American preparation, containing more chloroform than that in our Pharmacopœia. Chloroform had been prepared by Soubeiran ten or twelve years earlier. Liston was informed by Mr. Syme of Simpson's use of chloroform, and again asked me to administer it. Subsequently my chief reliance was on this anesthetic. For the mixtures of chloroform with ether and spirit, whether under the designation of methylen, A.E.C., or other names, in cases of labor, Junker's method of administration seemed specially suitable.

SOCIETY PROCEEDINGS.

NEW YORK STATE MEDICAL ASSOCIATION.

Thirteenth Annual Meeting, held at the Mott Memorial Hall, New York, October 13, 14, and 15, 1896.

FIRST DAY—OCTOBER 13TH.

NELSON L. NORTH, M.D., of Kings county read a paper on

FUNCTIONLESS ORGANS—ARE THERE ANY? A POSSIBLE USE OF THE APPENDIX VERMIFORMIS,

in which he referred to the numerous organs which, not very long ago, had been considered rudimentary, or functionless, but which were now known to have their office to perform in the human economy. It had seemed to him that the much-abused vermiform appendix had been created for some other purpose than to be ruthlessly sacrificed to the surgeon's knife, and in the numerous follicles of the appendix he found what seemed to him positive evidence of glandular action. His idea was that its office was to close the ileocecal valve and prevent the regurgitation of foul gases into the small intestine. The author then quoted at length statistics from the Brooklyn Board

of Health, to show that, in spite of the advancements in surgery, the death-rate from appendicitis and allied disorders had been steadily on the increase. He explained this by supposing that proper medical treatment was not given at the beginning of these affections—that many of the present generation of medical men had already forgotten the important lessons taught by Alonzo Clark and others. His own long experience in practise had long ago convinced him that the early and intelligent use of mild purgatives and enemata, together with the bold use of opium, when peritonitis threatened, would serve to cure many cases of appendicitis which physicians at the present time were prone to abandon at once to the surgeon.

DR. JOHN CRONYN of Erie county said that the medical treatment would be found all-sufficient in a large proportion of cases of appendicitis, if the physician would begin the treatment by giving a large dose of calomel, and follow this up by a liberal use of opium and the application of an ice-bag or a poultice to the affected region.

DR. WILLIAM M. BEMUS of Chautauqua county said that he had had good success in the treatment of this condition by the use of opium internally and an ice-bag externally, assisted by cold-water enemata. He asked Dr. Cronyn when he would apply ice and when poultices.

DR. CRONYN replied that if the case were seen early, the ice-bag should be used; if in a later stage, the poultice would probably be more appropriate.

DARWIN COLVIN, M.D., of Wayne county, the President, devoted his address to

MEDICAL EXPERT TESTIMONY.

Nothing, he said, was more degrading than to hear the medical expert constantly speaking of "our side." When the medical expert was appointed by a power entirely remote from either party to the suit, and was properly remunerated by a daily allowance, then, and not until then, could one look for much improvement in such testimony.

J. W. S. GOULEY, M.D., of New York county read an elaborate paper on

PROSTATIC ENLARGEMENT.

Diffuse increase of the muscle-tissue constitutes the greater part of the substance of some hard prostates. The most common form is chronic progressive enlargement of the prostate, a condition found in about forty per cent. of men between fifty and seventy years. Out of this number, however, only about one in six suffers from any serious interference with urination.

In the treatment of these cases, irrigation of the bladder is an important part. For this purpose, he favors the use of a 1–1000 solution of formalin, or of a 1–10,000 solution of corrosive sublimate containing one per cent. of phenol. Very weak solutions of nitrate of silver also act beneficially on the vesical epithelium. If very foul, the bladder should be washed out with the sublimate solution in the morning, and in the evening with the silver solution. The use of metallic catheters, either by patient or physician, was to be condemned, and it should not be forgotten that unclean or rough catheters were often the cause of much mischief. The indications for operative interference were: When the bladder was permanently contractured and its capacity inordinately reduced; when catheterism was extremely difficult or was followed by rigors, and in some cases in which auto-catheterism was not practicable. Early operative interference was justifiable, because it tended to prevent the occurrence of lesions which result from the retention and stagnation of the urine. It was, however, contraindicated when the upper urinary organs were much diseased. Where there was malignant or tubercular disease of the prostate, or slight disease of the upper urinary organs, palliative operations were called for. These were: Suprapubic cystotomy, the establishment of a suprapubic fistula, dilatation of a false route, and capillary puncture of the bladder. The first method was of much value in malignant or tubercular disease of the prostate. Dilatation of a false route was to be accomplished by the use of a special instrument, called an "invaginated catheter." After this operation, spontaneous micturition would ordinarily be possible for two years, and after this time, although catheterism would be required, it would be comparatively easy. Capillary puncture was rarely necessary, although in some emergency-cases it was proper to resort to it *once* to relieve intense suffering. Statistics showed that repeated capillary puncture was unwise. Among the radical operations performed were: Excision of urethro-vesical bars, excision of the central portion of the lower third of the isthmus, excision of vesical growths, and more or less complete removal of the prostate itself. Experiments on the cadaver had shown that the soft variety of prostatic enlargement could be readily enucleated, and this was the form most commonly met with in elderly men. Among the greatest and best operations ever devised for performance on the genito-urinary organs, he would class Dr. S. Alexander's method of doing prostatectomy. The operation could be done rapidly and thoroughly, with but little hemorrhage and injury to urethra and bladder, and it provided for efficient drainage, through both the suprapubic and perineal wounds.

DR. SAMUEL ALEXANDER of New York county said that in the management of enlarged prostate the choice lay between the use of a catheter for the rest of the patient's life, the removal of the prostate, or the formation of a permanent artificial channel for the urine. The value of catheterism depended largely upon the care with which it was done, and hence it was more applicable to intelligent people of leisure than to the ignorant and busy laboring man. In some cases, however, the most careful catheterism failed to give relief. Radical operative interference was indicated in the following conditions: (1) When the degree of retention was such that the patient was almost constantly dependent on the catheter; (2) when there was marked and persistent vesical irritability, due to intravesical growths; (3) when the amount of residual urine is on the increase; (4) when catheterism was becoming more difficult, and frequently followed by hemorrhage; (5) when even careful catheterism produced cystitis; (6) in long-standing cases of vesical inflammation, that have not yielded to other treatment; and (7) when the patients could not or would not use the catheter aseptically. He had performed his operation of prostatectomy first in January, 1894, and had done it altogether

eight times, with but two failures. In all but one of the six successful cases the ability to empty the bladder completely had been restored. Even the completely atonied bladder would, in most instances, regain its tone, even after years of obstruction, and usually, after this operation, voluntary micturition would be restored.

DR. W. G. BROWNSON of Noroton, Conn., described his experience in treating old soldiers suffering from enlargement of the prostate. He said that at his institution he had succeeded in giving comfort and happiness to many an old soldier by a simple method of palliative treatment. In cases in which a soft catheter could be introduced, these old men could be kept in fair condition by daily washings of the bladder. For this purpose he preferred a mixture of carbolic acid, glycerin, and water, 1 to 200 or 500. From two to four ounces of the solution were allowed to run into the bladder from a fountain-syringe, and each washing was kept up until the solution came away clear. It was rarely that more than one washing a day was required.

DR. DOUGLAS AYRES of Montgomery county said that in most instances complete retention of the urine was one of the latest symptoms. In the early stages, much good could be done by advising the patient regarding the proper clothing of the body, the necessity for evacuating the bladder at regular intervals, and by insisting on moderation in exercise, food, and drink. The regulation of the bowels was by no means an insignificant part of the management of these cases. The quantity of residual urine should be determined early, and if the urine were found to be sterile, and to amount to more than about two ounces, the catheter should be used, the frequency of its introduction being governed by the quantity of residual urine. At first, sterilized water, at 100° F., would be found useful for irrigation.

DR. E. D. FERGUSON of Rensselaer county said that in cases demanding drainage of the bladder he had found it useful and convenient to insert the tube to the desired depth, and then secure it in this position by one or two stitches passed through the skin and subcutaneous tissue.

DR. H. O. MARCY of Boston predicted a brilliant future for Dr. Alexander's operation of prostatectomy, but thought the perineal opening would secure sufficient drainage, without the suprapubic wound.

FREDERICK HOLME WIGGIN, M.D., of New York county presented a paper on

THE TREATMENT OF FECAL FISTULÆ, WITH REPORTS OF CASES.

He described in detail three cases of fecal fistula, two of which had been previously operated upon unsuccessfully in another city. These failures were, in all probability, due to the neglect to break up thoroughly the adhesions which, by preventing a free passage of feces, had caused a reopening of the fistulæ. There is but little danger of septic peritonitis arising from accidental discharge of the contents of the bowel into the peritoneal cavity, if the parts are washed with a fifty-per-cent. solution of hydrozone, and followed with saline solution. Used in this way, the hydrozone would not irritate the peritoneum, and, in his experience with this method since 1893, he had found it quite possible to meet successfully this formerly grave complication.

DR. MARCY heartily concurred in the views expressed in this paper. He said that a number of times, in operating on these cases, he had thought it wiser to leave the original cavity entirely alone, making the incision in the median line, and then dissecting off the adhesion of the intestine to the abdominal wound. The peritoneal opening of the fistula having been closed off, there was only left an external wound, which could be readily treated by dissection. The opening in the bowel he preferred to close by a double-tendon suture, reflecting over it the peritoneum.

JOSEPH D. BRYANT, M.D., of New York county read a paper on

IRRITABLE STUMP.

He reviewed the statistics of the late war, and gave the results of some inquiries that he had made among the makers of artificial limbs. From them he had learned that the important points to secure a useful stump were: (1) A sufficient length of flap to prevent traction on the stump; (2) a movable cicatrix, and (3) a periosteal covering for the divided ends of the bone. The author then described the method which he had found satisfactory in dealing with irritable stump in the lower third of the leg. The important points were: (1) A circular flap is made in the lower third of the leg, of a length a little greater than one-fourth of the circumference of the limb at the point of division of the bone; (2) after reflection of the flap upward equally for half an inch, a transverse incision is made across the subcutaneous surface of the tibia, at the line of reflection of the flap, and through the periosteum; (3) division of the periosteum at the limits of the anterior and posterior borders of the subcutaneous surfaces of the incisions, by an incision in the long axis of the tibia, the periosteum being pushed up, instead of dissected, along with the anterior flap; (4) a portion of the flap corresponding to the subcutaneous part of the tibia is lined, therefore, with the detached periosteum, which falls over the end of the bone when the flaps are adjusted; (5) the tibia is divided transversely on a line with the periosteal reflection, and the fibula, one-fourth of an inch higher up; (6) the flaps are coaptated obliquely on a line with the subcutaneous surface of the tibia, so that the periosteal flap rests evenly over the end of the divided tibia. It was important, the speaker said, that the periosteal covering should remain connected with the superimposed tissues.

J. LEWIS SMITH, M.D., of New York county read a paper on

THE HINDRANCES TO THE SUCCESSFUL TREATMENT OF THE DISEASES OF INFANCY AND CHILDHOOD.

He dwelt upon the former erroneous notion that dentition was a source of many of the diseases of childhood, and also upon the popular fallacy that "growing pains" were a part of the natural process of growth. He said that this popular fallacy was responsible for the development of many cases of rheumatic endocarditis.

REGINALD H. SAYRE, M.D., of New York county presented a communication on

THE PRACTICAL USES OF RÖNTGEN'S DISCOVERY AS APPLIED TO SURGERY.

He had been able to take photographs of fractured limbs while still encased in plaster of Paris, thus enabling him to know beyond a doubt the position of the fractured parts. The method also was most admirable in recording the condition of cases of congenital dislocation of the hip, before and after operation, and also to distinguishing between true and false ankylosis. In the former the X-ray photograph would not show the usual gap between the ends of the bones. Owing to the translucency of the cartilaginous portions of the foot in the young child, skiagraphs of club-feet in these little ones were not very instructive.

EDWARD B. DENCH, M.D., of New York county read a paper entitled

TREATMENT OF OTORRHEA AND ITS IMPORTANCE.

He said that a profuse, chronic, purulent aural discharge, which had lasted for over two months, could be assumed to come from the middle ear, and that a scanty purulent discharge probably came from the external meatus. While pressure in front of the tragus, or traction on the auricle, would cause adults pain in cases in which the external auditory canal was affected, this sign could not be relied upon in children, because in the latter there was no bony canal. A recent purulent otorrhea might be due to infection of the tissues about the meatus, or to infection of the tissues in the upper part of the tympanic cavity. Where proper drainage was provided the discharge would cease as soon as all the necrotic tissue had been discharged. The first object of treatment should be to secure free drainage, and the second, to keep the parts aseptic. When syringing out the ear in an adult, the auricle should be drawn outward, upward, and backward; in the case of a child, it should be drawn outward, downward, and backward. Peroxid of hydrogen was objectionable as an application to the ear, because it was irritating, and because the large volume of gas liberated when the solution came in contact with pus was liable to produce an injurious degree of pressure within the ear. The speaker said that he preferred to use a warm bichlorid-of-mercury solution, 1 to 3000 or 5000. Powders were objectionable, because they formed hard crusts and blocked up the canal, and plugs of cotton in the ear were liable to give rise to the formation of furuncles about the meatus. The importance of the subject treated in this paper was shown by the fact that one observer had reported that out of 820 cases of suppurative disease of the middle ear 2.5 per cent. had proved fatal.

FRANK S. MILBURY, M.D., of Kings county read a paper on

THE RELATION OF AFFECTIONS OF THE UPPER AIR-PASSAGES TO THE DISEASES OF THE EAR.

He spoke of the frequency with which middle-ear disease and deafness were dependent upon stenosis of the nasal passages. For this reason intranasal surgery often improved the hearing. Atrophic rhinitis and nasopharyngeal catarrh, and enlarged tonsils, were the cause of much disease of the ear, and adenoids, by plugging up the Eustachian orifices, gave rise to chronic congestion of the membrani tympani.

SECOND DAY—OCTOBER 14TH.

THOMAS J. HILLIS, M.D., of New York county read a paper on

THE TECHNIQUE OF INTUBATION IN CHILDREN; SOME REMARKS ON THE TIME FOR OPERATION AND AFTER-TREATMENT.

In performing intubation it should be remembered that the larynx of the adult is much more deeply situated than in the child. It was better to wrap up the child, with its arms crossed over the abdomen, in strong muslin, as in this way more room was left for the operator's manipulations. Sometimes, instead of keeping the tube and introducer exactly in the median line, space was economized by first tilting the instrument so that the tube lies across the tongue. As soon as it touched the guiding finger, the instrument should be restored to the median line. As the cartilaginous rings of the trachea in infants under a year old are soft, it might be possible to remove the tube by "expressing" it with the thumb and finger, instead of removing it in the usual way with the extractor. If it is to be expressed, the child should be placed on the back, with the head thrown well back over a small pillow. Dr. Hillis spoke in the highest terms of the new and ingenious contrivance devised by Dr. Dillon Brown, to facilitate the removal of the tube from the larynx. There could be no exact rule laid down as to the length of time the tube should be allowed to remain in the larynx, but it were better to err on the side of leaving it in too long. After its removal there would always be more or less obstruction, so that if this were not very marked, it should not cause the physician uneasiness. Many have advised that while feeding a child wearing one of these tubes the little patient should be placed on its back, with its head hanging over the edge of the nurse's lap. He preferred to place the child on its stomach, face down, as in this position it had more command over the constrictors. No food should be allowed for at least one hour after the performance of intubation. The best food was bread soaked in milk or beef-juice, and oatmeal-porridge.

JOHN SHRADY, M.D., of New York county read a paper on

TEMPERATURE AS AN ELEMENT IN PROGNOSIS.

The problems of waste and supply were to be considered in the light of sex, age, temperament, and environment. High temperatures were not as uniformly fatal as low temperatures, and a high temperature of short duration usually indicated an acute infection. As a rule a subnormal temperature presaged death.

T. D. CROTHERS, M.D., of Hartford read a paper on

THE MEDICAL TREATMENT OF INEBRIETY.

He said that it was most important to study at the outset the etiological factors present in the individual case. The removal of spirits at the beginning was always followed by the best results, and the reaction could be neutralized by giving one-twentieth of a grain of nitrate of strychnia every four hours, and, if necessary, the bromids for

insomnia. The withdrawal of spirits should always be followed by a brisk calomel purge, the use of hot broths, and hot baths with vigorous massage. Where the patient insisted upon a gradual withdrawal, the strychnia should be given every two hours, and the wines and beers substituted for the stronger spirits. Many cases developed tuberculosis, or other serious organic disease, as a result of the removal of alcohol. In those who show premonitory symptoms of a relapse, a brisk purge, with baths and prolonged rest, will often avert the storm. Drugs, like apomorphia, which are intended to produce a disgust for liquor, are not reliable, and are usually dangerous. The strychnin was best given in combination with cinchona, or other vegetable tonic. Belladonna, hyoscyamus, and drugs of this class, are of limited value, and should be used very cautiously after the withdrawal of spirits. Very large doses of bromids are necessary—from 50 to 100 grains, but not for more than a few days. The speaker said that no single remedy was capable of meeting a wider range of indications than the Turkish bath, combined with massage. In conclusion, the writer stated his belief that if inebriety were more generally and more carefully studied, the results of treatment would be very much better.

H. O. Marcy, M.D., of Boston read a paper on

THE SURGICAL RELIEF OF OBSTRUCTION OF THE COMMON DUCT BY BILIARY CALCULI.

He said that he was the first person to operate for the removal of a calculus situated in the common duct, and that this operation had been performed in October, 1889. The walls of the common duct were divided with scissors and their edges everted from over the roughened calculus. The abdominal cavity had been shut off by sponges before this. With a fully curved needle, threaded with selected tendon-suture, the divided edges of the thickened mucous membrane of the duct and gall-bladder were united by a continuous suture, and over this was another layer of continuous suture, which united the edges of the peritoneum. A third layer of tendon-suture was then applied, the stitches being taken parallel to the long axis of the wound, through the peritoneum. Tension on this suture not alone buried it, but also the uninjured peritoneum, with exact coaptation. The peritoneum was then closed with a continuous double tendon-suture. The divided muscular layers were sutured in a similar manner, in separate layers, and the skin was united by buried tendon-sutures. The patient made a very satisfactory convalescence. When dried, the calculus weighed fifty-nine grains.

Sidney Yankauer, M.D., of New York county exhibited a simple and very inexpensive microtome which he had devised, and which had been found capable of doing as good work as microtomes costing as high as $50.

Dr. Yankauer also exhibited a new plaster-cutter, consisting of three circular plates, having knife-like teeth, and all rotating together like a circular saw. Owing to the peculiar construction of the teeth they did not become clogged with the plaster of Paris.

H. A. Haubold, M.D., of New York county in a paper on

THE PHYSIOLOGICAL DEDUCTIONS REGARDING THE USEFULNESS OF SO-CALLED ANIMAL EXTRACTS,

expressed his disbelief in the efficacy of animal extracts, including the nucleins and protonuclein, and based this opinion on certain physiological considerations. It had been claimed that when the nucleins were administered hypodermically, they gave rise to leucocytosis, but this, to his mind, was only an indication that the blood was making a special effort to rid itself of the foreign substance.

William H. Robb, M.D., of Montgomery county read a paper on

ONE POINT IN THE TREATMENT OF ENDOMETRITIS.

He advocated the use of solutions of nitrate of silver, taking care previously to remove unhealthy secretions. For mild cases, and for those seen early, he preferred to use a solution of the strength of five or ten grains to the ounce, reserving the strong solutions for the chronic and severe cases of endometritis.

Dr. L. J. Brooks of Chenango county said that undoubtedly there was an apparent benefit, at least for a time, after this mode of treatment, but careful observation would show that these applications, particularly the stronger ones, produced an atrophic and non-secreting membrane, which would cause much annoyance in the future.

Dr. J. Francis Calef of Middletown, Conn., said that he found that very weak solutions of nitrate of silver (1 to 3000) were very soothing to inflamed mucous membrane; but in using these very dilute solutions, care should be taken that the water used for washing the surface contained no chlorids.

Dr. W. M. Bemus said that he had found peroxid of hydrogen and also galvanism useful in preparing the endometrium for the application of medicaments.

Dr. John Cronyn said that he had seen benefit frequently ensue from even strong applications of nitrate of silver. Curettage, in his opinion, was a fearfully abused operation.

E. D. Ferguson, M.D., of Rensselaer county read a paper on

A CLASS OF FATAL CASES PRESUMABLY DUE TO INTESTINAL PTOMAINS.

He described the clinical histories of eight cases of obscure, but virulent, toxemia which had come under his observation. Four of them were medical, and four surgical. In each instance the onset had been sudden, and the chief symptom had been the vomiting, first of mucus, and afterward of coffee-ground material. This was sometimes associated with slight icterus, and in every instance death rapidly supervened. The autopsies on two or three of the cases failed to throw much light on the condition, but served to exclude peritonitis, intestinal obstruction and sepsis. The cases had not been associated either in time or locality. The only explanation that he could offer was that some micro-organisms in the intestinal canal had, for some unknown reason, suddenly become active, and as a result of this activity there had rapidly accumulated in the system a powerful and lethal

toxin. This had also resulted in parenchymatous hepatitis and softening and acute atrophy, for these changes were observed at the autopsies. It was evident that in at least some of the cases there was no intestinal obstruction—*e. g.*, the last one, for the bowels moved freely up to the day of death. He would venture the opinion that the cause might be either a bacterial ferment or enzyme, or else that as a result of unusual nerve-inhibition the digestive processes were profoundly disturbed, and so gave rise to the production of this virulent toxemia.

J. E. JANVRIN, M.D., of New York county described

TWO INTERESTING CASES OF SURGERY OF THE KIDNEY.

The first was a case of multiple abscess of the left kidney, complicated by Bright's disease, in which nephrectomy was performed and death occurred from uremia six days after the operation. The second was one of fibrolipoma of the capsule of the kidney, which was successfully removed by laparotomy.

NATHAN C. BOZEMAN, M.D., of New York county, presented a paper on

THE PALLIATIVE TREATMENT OF CANCER OF THE CERVIX AND BLADDER IN WOMEN.

He emphasized the importance of early recognizing and relieving the partially strictured condition of the vagina by the use of intra-vaginal dilators, worn for several hours each day. He had found it very useful in these cases to employ continuous irrigation of the bladder, for a vesico-vaginal fistula due to carcinomatous ulceration should never be closed.

R. ABERDEIN, M.D., of Onondago county spoke on

THE BROMIDS AS A CURE IN DIPHTHERIA.

He said that his friend, Dr. Knight, had observed the beneficial action of the bromids on diphtheria incidentally during an epidemic of that disease in the insane asylum. Following out this suggestion, the speaker said that he had tried the method in thirty-five cases, some of them quite severe, and had lost only two of the patients—one a child of five, and the other a child of eight years. In no case had the remedy produced bromism or irritability of the stomach.

W. T. LUSK, M.D., of New York county spoke on

RECENT INVESTIGATIONS CONCERNING ECLAMPSIA.

He called attention to the fact that many cases of slight albuminuria during pregnancy did not terminate in eclampsia, and that, on the other hand, eclampsia not infrequently occurred without any evidence of albuminuria or other abnormality of the urine. A diminished quantity of urea would indicate an excess of other poisons resulting from tissue-changes. At the present time, a plan of treatment that found much favor abroad was to place the patients showing slight albuminuria, with perhaps slight nervous symptoms, on a diet of at least two quarts of milk a day, and carefully regulating the bowels. Where there were headache and epigastric distress associated with albuminuria, he would be disposed to induce premature labor, but he would not care to interfere if there were no symptoms excepting the albuminuria. Ordinarily, he would prefer the use of Barnes' dilators, but in exceptionally urgent cases it might be justifiable to make the four incisions into the vaginal portion of the cervix recommended by Dührssen. If this were done, the incisions should be sewed up immediately after delivery. Where the eclamptic patient showed turgid blood-vessels, the removal of sixteen ounces of blood from the arm would act more efficiently than any other known measure.

WILLIAM M. BEMUS, M.D., of Chautauqua county read a paper on

THE DUTY OF THE PUBLIC TO THE PHYSICIAN,

which dealt chiefly with certain legal points not infrequently arising in medical practise. He said that if a physician were sued for malpractise, and won the suit, it was quite likely that he would have to pay costs, owing to the plaintiff not being a responsible party. As a rule, anything warranted by good practise, and not objected to by the patient, is justified in law.

A. A. HUBBELL, M.D., of Erie county in a paper entitled

A PLEA FOR THE GENERAL USE OF MEASURES TO PREVENT OPHTHALMIA NEONATORUM,

showed by statistics that ten or fifteen per cent. of those who have had this disease are blind in both eyes. In the Credé method of prophylaxis, the child is put into a bath as soon as the umbilical cord has been tied, and then the lids are cleansed with absorbent cotton, and a single drop of a ten-grain solution of nitrate of silver is instilled into each eye. As the disease often occurs in cases in which there is not the slightest ground for suspecting that the mother has had gonorrhea, the need of carrying out some such preventive method in the case of every newborn child is manifest.

CHARLES PHELPS, M.D., of New York delivered the address on

SURGERY.

He said that, in the surgery of the past, the diagnosis was often made in the absence of positive data, with an accuracy that made the surgeon's judgment seem almost like intuition. The established dependence of suppuration on the presence of streptococci had revolutionized surgical practise, and this discovery had been followed by both a cure and an absolute means of prevention. It was probably the most conspicuous achievement of contemporaneous surgery. Dr. Phelps devoted the greater part of his address to a consideration of the ethical side, criticizing chiefly the strong tendency at present for surgeons to exploit themselves in the daily papers and elsewhere. The remedy, he said, was to be found in a better preparatory and medical education—a broader culture in all those things which go to make up a true gentleman, and one worthy of belonging to an honorable profession.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 13, 1896, TO OCTOBER 19, 1896.

PROMOTIONS.

Lieutenant-Colonel C. R. Greenleaf, Deputy Surgeon-General, to be Assistant Surgeon-General, with rank of Colonel, October 10, 1896, vice Town, retired.

Major William H. Gardner, Surgeon, to be Deputy Surgeon-General, with rank of Lieutenant-Colonel, vice Greenleaf, promoted, to date October 10, 1896.